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ORIGINAL ARTICLES.

RECENT ADVANCES IN THE DIAGNOSIS AND TREATMENT OF SOME DISEASES OF THE STOMACH.[1]

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THE pathological conditions of the stomach have, during the last few years, received a great deal of attention and consideration by medical investigators, with the result of placing them in a new light and a more rational position.

As pathological manifestations are but abnormal physiological functions, we will have to consider the normal gastric functions before proceeding to the abnormal.

It is a well-established fact that the stomach has distinct digestive power, and it is also well known that this is due to its secretions or to part thereof. While the secretive action of the stomach, in common with all mucous membranes, results in the production of mucus, the secretion of its acid digestive fluid from the peptic glands is one peculiar to this viscus alone, and to this product the name "gastric juice" is commonly given. That portion of the acid gastric juice which has a distinct influence on its digestive properties has been definitely shown by Carl Schmidt to be hydrochloric acid. The proteid ferment, which is made active only by this acid, is known as pepsin, and the result of its action on albuminoid food as peptone.

It has of late been questioned if the hydrochloric acid secreted by the peptic glands has only the power of rendering the pepsin active, and it is held by some (G. Bunge, *Lehrbuch der physiologischen und pathologischen Chemie*) that its principal value consists in rendering aseptic the ingested food, a fact which the attempt has been made to substantiate from the result of experiments which proved that 0.3 per cent. HCl prevented septic change in meat fibre, while the average normal gastric juice contained that amount of it. Normal gastric juice undoubtedly prevents and corrects effectually septic change of albuminoid food. Felix O. Cohn, in the *Zeitschrift für physiologische Chemie*, xiv., 1, July 29, 1889, ascertains that this is not attributable to the admixture of pepsin; that even small quantities of HCl prevent the formation of acetic acid, and that lactic fermentation is prevented by as much HCl as is necessary to convert into chlorides the phosphates necessary for the development of the bacillus acidi lactici. He also states that pepsin-hydrochloric acid has the same value to prevent fermentations as that without pepsin, and that HCl united with peptones fails to inhibit or prevent fermentation, and, as is already known, to digest albuminoid food. He further confirms Ewald's observation that HCl is probably secreted at once with the ingestion of food, but is imbibed by and united with the albuminoids, also with the bases and salts it unites with or displaces, and that during this period there is nothing to prevent other fermentations.

The question of the production of HCl in the peptic glands from the alkaline blood and fluids, is one that is of interest and value to gastric physiology. That HCl must necessarily result from the decomposition of the chlorides of the blood and liquids of the body is quite apparent. As sodium chloride is the principal one of these contained in the blood and lymph, and as these also hold in solution sodium bicarbonate, it may readily be inferred how sodium carbonate can form with liberation of hydrochloric acid, as per following formula:

$$NaCl + NaHCO_3 = Na_2CO_3 + HCl.$$

It is, undoubtedly, the characteristic secreting power of the epithelial cell to diffuse the products of this decomposition in a manner that the more alkaline salt will be returned to the blood, while the acid becomes part of the gastric secretion.

It is a peculiar fact that the peptic glands of the pyloric region, which distinguish themselves even macroscopically by their paler color, secrete alkaline fluids, which, however, when acidulated with HCl, have marked peptonizing power. When comparing the anatomical structure of the peptic glands of the pyloric and the non-pyloric region of the stomach, we find that the former have no ovoid, often called peptic, epithelial cells which we find in the tubules of the latter. It seems fair from this to deduce that the ovoid cells of the peptic glands secrete the HCl, as already pointed out by Heidenhain.

I have recently been able to arrive at similar deductions from experiments conducted with Dr. E. P. Davis at the Philadelphia Hospital. In a number of examinations of the gastric juice of normal infants no hydrochloric acid was found present therein,

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while coincident with my observations it was stated that the tubules of the peptic glands of the infantile stomach have no ovoid cells.

Ludwig and Ogata deduce from experiments on dogs on which resection of the entire stomach had been practised, as well as from some in which the pylorus had been occluded and the animals fed by a duodenal fistula, that the stomach was not absolutely necessary as far as digestion was concerned, either as a receptacle for food or as a generator of peptic fluids. Though these experiments of Czerny, Ludwig, and Ogata prove beyond doubt the possibility of nutrition without the stomach in the dog, the predigestion of food in the stomach is certainly indicated by the time it remains there, the changes it undergoes while there, and the absorption of peptonized food directly therefrom. That the stomach should only slowly rid itself of its chyme cannot possibly be only to the end of rendering it antiseptic by contact with its acid secretion, when the powerful peptonizing action of the chlorhydric solution of its secreted albuminoid principle is so well established. That different foods are much more readily acted on by the gastric juice and passed from the stomach, as shown by Beaumont, would also tend to establish the importance of gastric digestion for the nutritive process, even if impairment of the normal gastric digestion did not give rise to special pathological conditions quite characteristic as well as important in their effect upon the general nutrition of the human organism.

Before proceeding to the consideration of the typical diseases of the stomach, their pathology, diagnosis, and treatment, after having learned the special digestive function of the stomach, it is well first to study, as a general pathological condition, the perverted function which must arise more or less from all gastric disorders, and which, as an impairment or lack of the peptic act, is, therefore, termed "dyspepsia." Modern pathology recognizes the fact that gastric digestion is a purely chemical process due to various influences upon the secretory apparatus of the stomach, and the "chemical dyspepsia" has, as such, been proclaimed in the last three German Congresses for Internal Medicine, by von den Welden, Leube, Riegel, Ewald, Boas, Edinger, Jaworsky, etc.

DYSPEPSIA.

The chemical changes which take place in the stomach under abnormal conditions are the variable composition of the gastric secretion, owing to the increased, diminished, or totally absent quantity of hydrochloric acid, for so far no absence of pepsin has been established in any of the gastric secretions yet examined, and all of them have answered the physiological digestive test if admixed with hydrochloric acid.

The diagnosis of dyspepsia, as practised to-day, is the consequence of, and was developed from lavage of the stomach, as introduced by Kussmaul about twenty years ago, and the close investigation of the matter thus washed out. Previously the contents of the stomach and its secretions were judged principally from the vomited matter, but as this is a pathological product, it cannot give any correct idea of the possible functional ability of this organ. The ingesta, besides largely diluting the gastric secretion, make its chemical examination very uncertain and unreliable. The withdrawal of the gastric secretion when its digestive power is the greatest, is necessary at certain periods which have been ascertained by experiment and observation. This has to be done also at a time when the presence of ingested matter shall not render the withdrawal impossible. Without dwelling on the different experiments to ascertain this period, it is now generally accepted that a special meal should be given, after which, at a certain time, the gastric secretions are withdrawn. The early meal generally employed for this purpose is known as the trial breakfast, which consists of a few pieces, altogether about two to three ounces, of bread or bun and a glass of water or a cup of tea. Jaworsky and Gluzinski, relying on the observation that a soft-boiled egg disappears from the normal stomach in one and a half hours, use this instead of the above-mentioned trial breakfast. At times, however, and especially under pathological conditions, it is found that the egg is not peptonized in that period, and then, by clogging the tube and the now proven union of the free hydrochloric acid with the albuminoids, the withdrawal is rendered difficult and the results inaccurate. To obtain the gastric juice from four to five hours after a more copious "trial dinner" has no advantage, and the "trial breakfast," after all, is the one relied upon.

Ewald and Boas express the gastric juice by epigastric pressure, about one hour after the trial breakfast, when it is known that in the normal state it is strongly acid from hydrochloric acid, the lactic acid having disappeared, and only continuing to be present in abnormal conditions. To express the gastric juice has disadvantages which may be readily avoided by the use of a suction apparatus. Germain Sée recommends a Potain aspirator for this purpose, partial exhaustion only being made, but an ordinary syringe answers the purpose very well, as the quantity for chemical analysis need only be very small, from one to two drachms sufficing to that end. The tube employed for withdrawal of gastric juice is a small-sized, ordinary stomach-tube, having two fenestræ, and, in the cases of infants and children, I have frequently used simply a small, soft-rubber catheter.

After the introduction of the tube in the usual manner, the fluid is withdrawn by slowly drawing

out the piston of the syringe. A sufficient quantity is recognized by a small glass-tube connection in the rubber one; the tube is then carefully withdrawn and emptied into a small glass vessel. The liquid so obtained is next filtered and tested, to ascertain if acid or not, with neutral litmus paper. When the acidity is thus established, the amount of acidity is determined by acidimetry with a decinormal solution of sodium hydrate, litmus or phenolphthalein being used as indicator. Five cubic centimetres of the filtered gastric juice are neutralized with decinormal solution of soda, as stated above, and the total acidity is expressed by multiplying the result by twenty, thus giving the number of cubic centimetres of one-tenth normal soda solution necessary to neutralize one hundred cubic centimetres of gastric juice.

After this is done, the chemical character of the acid is investigated. To this end the lactic acid test of Uffelmann may be applied. This consists of a two per cent. solution of carbolic acid to which a few drops of neutral ferric chloride are added, sufficient to produce a steel-blue color. When this is added to some of the filtered gastric juice it will be decolorized if the acid is pure hydrochloric; if lactic acid is present together with hydrochloric, the color will be changed to a yellowish tint, and if the lactic acid is in excess, it may even assume a reddish-yellow; whereas, in the absence of hydrochloric acid, it will have a more greenish tint. Though this seems to answer the purpose, it only shows the presence of lactic acid, without giving a distinct idea as to the presence of hydrochloric acid.

For the purpose of showing the latter, Laborde proposed the use of methyl-violet; a watery solution of this is promptly changed by HCl to a greenish-blue color, but is not affected by lactic nor the fatty acids. It has, however, the disadvantage of being not sufficiently delicate, and the color-changes with weak acidulous fluids are not distinct enough to judge of small amounts of HCl. To test with it, some of the filtered gastric juice is placed in a small glass vessel (watch-crystal) placed upon white paper, and the test solution is allowed to drop on the side of the vessel and commingle with the fluid, when the change of color can be plainly observed against the white background. In a series of experiments to ascertain the limit of delicacy of these tests for HCl, I have found that the methyl-violet could detect in this manner 1 part of HCl in 2500 parts of water.

The next test, superior in delicacy, is a saturated aqueous solution of tropeolin; this yellow solution, when applied for the examination of gastric juice in the manner described for methyl-violet, will change to a beautiful red, or brownish-red with HCl, is but a little darkened by lactic acid, and very slightly so by the fatty acids. I have ascertained its limit of detection of HCl to be 1 to 3500, while 1 to 500 is the greatest dilution of lactic acid that will darken its color, and it is not affected by a 1 to 100 dilution of acetic acid.

A more recently introduced reagent is the phloroglucin-vanillin. Germain-Sée has made extensive experiments with this, and while it does not indicate organic acids, he claims for it a delicacy sufficient to indicate as little as 1 to 20,000 of HCl—a claim, however, which I have not been able to substantiate entirely from my own experiments.

It was found by Wiesner that if a pine stick was dipped into a phloroglucin solution, and was then touched with strong HCl, it turned a dark-red color. This reaction is caused by the presence of vanillin in the pine wood; and, therefore, this was substituted for it. The test is composed as follows: 2 grammes phloroglucin and 1 gramme vanillin dissolved in 30 grammes absolute alcohol. This yellowish solution gives at once with a stronger mineral acid a dark-red color with deposition of red crystals. To apply this test to weak acid solutions, such as the gastric juice, the fluid must be evaporated at a moderate heat, not reaching the boiling-point of water, to drive off the water and leave the HCl of sufficient strength to act on the reagent. To this end a few drops of the test are mixed with a similar quantity of the filtered secretion, and then slowly evaporated to dryness. If HCl is present the dry residue assumes a red color, or if present in very small quantity may show distinct red outlines only. In my hands this test, certainly a very valuable and delicate one, failed to indicate more than 1 part HCl in 10,000 parts.

The red Congo paper, as proposed by Prof. Riegel, is a most delicate reagent, and easy of application. It is readily turned of a bright greenish-blue color by HCl, but is also affected by lactic acid, which changes its color to a dark dirty-blue; and acetic acid will darken it with a bluish tinge. With this reagent, as obtained from Merck in Darmstadt, I was able to detect as little as 1 part of HCl in 20,000 parts of water; and while 1 part of acetic acid to 3000 water gave a slight change in color with bluish edges, 1 of this to 5000 did not affect it in any manner; 1 part of lactic acid in 5000 water was indicated by it in traces, but 1 to 6000 failed to elicit a change in its color.

It is thus seen that the latter is perhaps the most delicate reagent we have, not alone for HCl, but as an indicator of general acidity, and that when it fails to indicate the latter a total anacidity may be fairly claimed. When it indicates acidity, the application of the other tests may become necessary, not alone to ascertain the character of the acidity, but to approximate the degree to which HCl may be present in cases of subacidity. The gradation

and limits of these reagents, as pointed out by me, may be readily utilized to this end by dilution of the secretion up to the point where either of the above tests fail, and computing the HCl by the amount of the dilution.

The excess, normal presence, diminution, or absence of HCl being thus established, the digestive power of the gastric juice is now ascertained by the physiological test. To this end a small piece of coagulated egg albumen of about 7 mm. diameter and 1 mm. thickness is digested at the temperature of the body, and the comparative time necessary for its solution noted. With normal secretion this should be complete in from one to one and a half hours, whereas under abnormal conditions a much longer period and the addition of HCl may be required.

To classify the different phases of chemical dyspepsia, they can be conveniently arranged as hyperacidity, subacidity, and anacidity.

HYPERACIDITY is the overproduction of HCl by the peptic glands, the amount reaching as much as 0.4 to 0.6 per cent. of the peptic secretion. Its *etiology* seems still obscure, and may be attributed perhaps to the chemical condition of the blood, and to the concentric rather than peripheral stimulation of the secretory glands, and it is a fact that at times it is found irrespective of food ingestion. While its *symptoms* are quite characteristic, consisting of pyrosis, acid eructations which perceptibly affect the teeth, occasional vomiting, and ptyalism, under such conditions commonly termed water-brash, its *diagnosis* is readily made out with the tube and subsequent acidimetry, and confirming the character of the acid with methyl-violet, which is promptly changed to a distinct greenish-blue.

As a chemical indication for the *therapy* of acid dyspepsia or hyperacidity, alkalies must rank first and foremost; amongst them the sodium bicarbonate deserves principal consideration in massive doses of from 30 to 45 grains every four hours, and before meals. Alvine evacuations, which are more or less suppressed in this condition, should be freely promoted by Carlsbad salts, or by appropriate preparations of rhubarb in laxative doses. Hot potations, which are often lauded in this connection, have, in my experience, proven of little avail, but free lavage with borax or sodium bicarbonate solution gives the greatest relief. As physiologically indicated the diet should consist of proteid substances, while carbohydrates must be studiously avoided.

SUBACIDITY. *Etiology.*—While in hyperacidity it was an excess of HCl which caused rather gastric distress than suppression of the peptic act, subacidity is generally observed in the catarrhal conditions of the gastric mucous membranes which are caused by improper food, excesses in drink or chemical irritants, and where, through irritation, the mucosa is hyperæmic and secreting abnormal quantities of alkaline mucus, diminishing the ostia of the peptic glands, and admixing the former with the gastric juice proper, thus preventing its proper action on the food-bolus. The common acute indigestions of our summer months, attributable to excessive drinking of iced beverages, belong to this class.

The *symptoms* are anorexia, thirst, slight fever, a sense of pressure and fulness in the epigastrium, occasional vomiting, and belching of gas, with eructations of fermenting food. A dry and coated tongue is generally observed in this condition, together with a bitter taste in the mouth. The bowels may be loose or bound, and by a progressive advance of the catarrhal process to the duodenum it may be followed by icteroid appearance.

Treatment.—This class of dyspepsia calls for rapid evacuation of the stomach, either by tube or emetic, followed by local sedatives, such as bismuth and soda; while after subsidence of the mucous hyperæmia and a continuance of subacidity, ten to fifteen drops of dilute HCl in water prove of service given after food. During the febrile stage small pieces of ice by the mouth and iced milk diluted with some effervescent alkaline mineral waters prove most grateful and serviceable.

CHRONIC GASTRIC CATARRH.

The persistence or frequent repetition of ingestion of the causative elements of the acute gastric catarrh cause a chronic state commonly met with in subjects, termed "chronic dyspeptics," and, as the chronic gastric catarrh, is the cause of subacid disturbances of the digestive function. This may be, and often really is, gastro-enteritis; and, again, it is dependent at times upon other diseases and, therefore, only secondary in character. The cause of disturbance of the chemical composition of the gastric secretion hence must be looked for either in the altered chemical composition of the blood or in the changed anatomical relations of the glands.

The gastric mucous membrane in this affection is heavily coated with a grayish-white material, consisting largely of cast-off epithelium; the odor from the buccal cavity is, from this cause, more or less offensive, and the mucosa beneath the coating is red and hyperæmic. According to the stage of its existence, the mucous surfaces may be smooth or atrophic, and there may be an accompanying atrophy of the peptic glands and an increase of connective tissue between them. Not infrequently hyperplasia of the mucosa exists, diminishing the ostia of the peptic glands, the hyperplasia extending at times even to the submucous tissue.

The main result of these anatomical changes consists in the reduction of the amount of HCl in the secretion, and with it the diminished digestive power and an insufficient inhibition of bacterial develop-

ment, in consequence of which fermentation of the ingesta ensues, with copious eructation of gases and the formation of lactic, acetic, and other acids. In cases where the absence of HCl is very marked, the fermentative processes may cause vomiting, and the ejecta will often reveal to microscopic inspection yeast fungi and sarcinæ ventriculi, which are, however, of no special pathological consequence.

A feature of the chronic gastric catarrh is the impaired peristalsis of the stomach. This is dependent on the diminished amount of HCl present, as we know that in the normal stomach this acid is the principal exciting cause of gastric peristalsis. In consequence thereof dilatation results, and the degree of subacidity becomes more and more marked until almost entire anacidity prevails, as I had occasion to observe in several instances of chronic gastric catarrh during a recent investigation of a series of cases of this kind at the German Hospital of Philadelphia, made by myself and the medical resident, Dr. Gerlach.

As the physical examination of the stomach offers no characteristic points for *diagnosis*, the latter cannot well be established without the chemical examination, together with due consideration of the subjective and objective symptoms and exclusion of such pathological conditions which stamp the dyspepsia as secondary to some other affection.

The *treatment* of the chronic catarrh of the stomach as a primary affection should be largely dietetic, avoiding all food that is irritant, bulky, or slowly acted on by the gastric secretions. Thus, carbohydrates should be avoided, also fats, and principally alcoholic beverages. Milk, broths with raw eggs broken and stirred into them, and toast, should, in severe cases, constitute the principal food. As the tardy gastric digestion will favor fermentative changes, which in turn act as irritants and favor the accumulation of mucous secretion, the removal of undigested food, together with such bacteria as would incite decomposition *de novo* in freshly added food, is indicated in all such cases, and calls for mechanical treatment by lavage, which, though little practised in this country so far, has often worked wonders with chronic dyspeptics.

Amongst the remedial agents the chemical indication for the use of HCl would certainly be foremost, to correct the subacidity and promote the peptic process. When lavage is practised this indication will generally hold good, but when the milder symptoms do not indicate the use of the tube it will do no good. The reason for this is the large amount of mucus which is coagulated by the acid, and by enveloping the food particles prevents them from being acted upon by the gastric secretions. In these cases the alkalies, and among them the sodium bicarbonate, should be used, together with the vegetable bitters to excite active secretion; of these the tinc. gentian. comp., tinct. nucis vomic., tinct. colombo, etc., will prove of good service. Gastric antiseptics and antiferments can hardly be administered in sufficient quantity to do good, and very few, if any, are germicidal enough to correct an already fermented food-bolus. The constipation, sometimes so marked in these cases, is best overcome by Carlsbad salts or by some of the laxative mineral waters, or in more obstinate cases by pil. rhei comp.

NERVOUS DYSPEPSIA.

The influence of the nervous system upon the gastric digestion has been regarded as of great importance and has led to the special classification of "nervous dyspepsia."

That the innervation of the stomach may influence the gastric secretion, and that hyperacidity or subacidity may thus arise, is not to be doubted, but that special nerve influence could pervert the chemical act of digestion with normal secretion in the stomach any more than in the retort is not reasonable. The only neuroses appreciable to our present state of knowledge must be those of either sensory or motor disturbances. The reflexes causing intense neuralgic pains of the stomach may depend primarily upon perverted digestion, with or without motor implication, and are, as such, known as "gastralgia." In neurotic patients they may develop, even without peptic disturbances, from external influences upon a morbid mind; but that with normal gastric secretion, the chymification of food should be interfered with by nerve influence can only be explained by the interference of reflexes with the motor innervation—*i. e.*, gastric peristalsis—accompanied either by pain or emesis, or both. The many subjective symptoms of the so-called "nervous dyspepsia" are certainly pure psychoses and cannot be classed with gastric diseases. It is doubtful if migraine is of gastric origin or due to intestinal indigestion, and also if the gastric neuroses, such as vertigo, etc., do not all, more or less, arise from this source.

The *treatment* of the neuroses of the stomach, as indicated by the character of the affection, must be either anæsthetic or else directed to the motor innervation. In the pure gastralgias, morphine hypodermatically will prove all that is requisite; in increased peristalsis with convulsive contractions and vomiting the bromides or chloral, or both, will meet the issue, while in atony of the muscularis nothing will prove as serviceable as nux vomica, calisthenics and the cold douche or surf-bathing. The subjective symptoms and psychoses, electing the gastric function for the toy of a morbid mental state, will yield to moral treatment and proper hygienic conditions if at all, but not to pepsin and kindred medication.

ULCER OF THE STOMACH.

Of the gastric diseases not directly arising from perverted peptic function, but at times seriously affecting it, is ulcer of the stomach.

The *etiology* of this disease is as yet obscure, although experimentally it has been produced by embolic processes of the vessels of the gastric mucous membrane. Though its primary cause is not known or to a certainty proven by the experiments mentioned, there seems to be no doubt that it is indirectly caused by autodigestion of the affected portion of the stomach. The fact that the normal stomach resists the digestive power of its secretions has been variously attributed to the alkalinity of the blood circulating through it and, also, to the vital resistance of the living tissue against the chemical process. The latter seems such a speculative assumption, based upon an absolutely undefined factor, that it might be far better to adhere to the more rational theory, which is certainly substantiated by experiment and the observation that the dead stomach as well as that cut off from circulation, digests itself.

The gastric ulcer is of circular outline and spreads as well to the periphery as to the fundus, so that with clean-cut edges it narrows down to a funnel shape. The fact that it is generally clean is due to the erosive action of the peptic secretion; it may be superficial only, or reach the muscular and serous coats, even perforating the viscus entirely. While generally solitary, it is multiple at times, and, though principally met with in the pyloric region, it is also occasionally found in the lesser curvature and, as a rule, on the posterior wall, which accounts for the agglutination of the stomach in such affections with neighboring viscera. The ulcerative process and erosion may affect smaller or larger vessels and thus give rise to the characteristic hæmatemesis.

Symptoms.—Though ulcus ventriculi may not in all cases be accompanied by characteristic symptoms, there are a large number of cases which exhibit phenomena to warrant suspicion of the existence of ulcer. Of these, localized pain is, perhaps, the earliest, with gastric irritability and, probably, vomiting. The pain may be localized or diffused, or of a neuralgic character, referred to the epigastrium or back, or radiating; it is often relieved by a change of position, and, if this results from recumbency on the left side, its location is most probably in the pylorus. The localized pain increases with ingestion of coarse food, and, if found circumscribed on pressure, this would also form an important factor in the diagnosis. Though the emesis accompanying these subjective manifestations is of some additional diagnostic value, it is by no means a frequent concomitant and not characteristic of ulcer, unless accompanied by blood in sufficient quantity to stamp it as hæmatemesis.

The blood from erosion of a vessel by gastric ulcer is, however, not always ejected from the stomach, but appears at times in the dejecta, imparting to them a dark and tarry appearance. The vomited blood is generally clotted, mixed with food particles, and acid reaction in contradistinction to the light, frothy-looking blood of hæmoptysis. Gastric hemorrhage may range from a few ounces to several pints, and, when very copious, may be, and occasionally is, the cause of fatal results. The dyspeptic symptoms of gastric ulcer are of no diagnostic value, and arise from accompanying conditions rather than the disease itself; but a most general symptom connected with it is the hyperacidity described by Riegel, and since confirmed by others; this is of great importance in the indication for treatment.

The *prognosis* of ulcer of the stomach may be said to be favorable in the majority of cases, as to direct results. The indirect sequel from cicatricial stenosis of the pylorus we will consider under the head of dilatation. The incidental perforation or exsanguination are factors which make the prognosis very grave, if not necessarily fatal, but fortunately arise in isolated instances only.

The *therapy* of ulcer of the stomach, as indicated by its pathology, would preclude, before all, the ingestion of solid food and, in fact, of anything that would excite or promote peptic secretion. I consider milk diet in such cases with hyperacidity as little calculated to benefit the patient, as the firm coagula of acid casein not only stimulate peptic secretion but offer great resistance to gastric peristalsis and still further obstacles to subsequent pancreatic digestion, thereby causing intestinal indigestion and thus defeating the very object of nutrition. Broths, with raw eggs broken and stirred into them, which are capable of uniting with free hydrochloric acid and of diminishing the peptic power of the free acid, as recently proven by Felix O. Cohn, offer certainly a more rational diet, readily digested and assimilated. I have succeeded better with total abstinence from food and rectal alimentation than by any other method. Thirst is to be quenched with ice, pain controlled by morphine hypodermatically, while the hyperacidity is overcome by sodium bicarbonate in massive doses.

Absolute rest is of utmost importance both physically, mentally, and as a matter of course as far as the stomach is concerned. Hot fomentations to the epigastrium arrest paroxysms of pain, while ice-pills per os and the ice-bag locally will assist in the treatment for hemorrhage. The latter is best combated by hypodermatic injections of ergotin or scruple doses of gallic acid frequently repeated. Nausea and vomiting are met with ice-pills, chloral, creasote, or Lugol's solution. Perforation and the results therefrom may possibly be benefited by surgical treat-

ment, but too little as yet is known regarding this to base much hope on its success.

DILATATION OF THE STOMACH.

Dilatation of the stomach is a pathological condition generally, if not probably always, accompanied by subacidity, and in a large number of cases with anacidity.

Only a minority of cases of this kind are primary dilatation—*i. e.*, that do not depend upon some other morbid affection of the stomach; the majority are secondary, in so far that they are consequent upon stenosis of the pylorus, which in turn may be either benign or malignant—the former arising from cicatricial contraction after ulcer, the latter due to the presence of carcinoma in that region. There may be also stenosis from mechanical pressure of near-lying tumors (floating kidney, Bartels), which, in turn, like all obstructions in that locality, occasion dilatation of the stomach.

Gastric dilatation without pyloric obstruction is sometimes noted in, and consequent upon, chronic catarrh of the stomach, but never occurs then in that degree as in the variety resulting from the former cause. It depends upon paresis of the muscular coat resulting from general debility or overdistention by ingested matter, and is frequently noted in those who indulge to excess in the pleasures of the table and the cup. I have had occasion to observe it more in connection with the chronic gastric catarrh of beer-drinkers than of any other class of patients, and it is also claimed to be frequently found among diabetics.

The *pathology* of gastric dilatation is to be considered as similar to that of cardiac dilatation in aortic obstruction. The muscular fibres of the stomach, to overcome the pyloric constriction, first become hypertrophied; the accumulation of food soon produces paresis of the muscular coat and dilatation results, which increases in the same measure as the chemical peptic act is diminished, and the fermentative changes of the food-bolus produce irritation and inflammation of the mucosa. The latter, under such conditions, fails to secrete a sufficient amount of hydrochloric acid, which is the excitant to gastric peristalsis. As a consequence of overdistention, the mucous coat suffers anatomical changes, the ostia of the peptic glands—which at first appear almost hypertrophied and extend beyond the surface of the mucosa—soon atrophy, and with it the secreting power of the gland becomes less and less.

It was thought at one time that anacidity was pathognomonic of gastric carcinoma, but that has been certainly disproven, and it can only be possible when pyloric cancer, and consequent obstruction, produces dilatation of the stomach. Any considerable dilatation must necessarily result in subacidity, and if existing for some time and in increasing ratio, or from complete pyloric stenosis, it must result in anacidity. This has been disputed and HCl has been claimed as being present in not merely distended stomachs but also in the overdistention or complete dilatation from pyloric obstruction, but it seems unlikely, and when we consider the diagnostic difficulties for defining distention, or even sometimes complete dilatation, the error may be readily looked for rather in the diagnosis than in the pathological condition. We may justly assume that anacidity is not a symptom accompanying any special gastric disease, but in all probability always results from complete dilatation from whatever cause this may happen. While in the functional anacidity from gastric catarrh, etc., this may exist for the time being and is, no doubt, also the result of dilatation, it being a paresis of the muscular coat rather than a paralysis of the fibre as in complete dilatation, the chemical character of the gastric secretion can be restored by a removal of the vicious element.

The *symptoms* of gastric ectasis are those of apepsia generally, anorexia, gastric pressure, eructations, pyrosis, and vomiting. The latter is somewhat characteristic, as it takes place at longer intervals only, when the ectasis has assumed great proportions and fermentative changes exert their irritation upon the mucous membrane. According to the amount and quality of food taken, it may happen only once in twenty-four hours, or in three to four days and even longer periods. My friend Dr. J. M. Barton ingeniously ascertains the number of meals comprised in the emetic act under such conditions, by giving a number of raisins with each meal and counting their number when rejected from the stomach. To arrive at the degree of stenosis he gives both raisins and a few currants. If the latter are not ejected in the vomit he concludes very justly that the pylorus is partly pervious and deduces the amount of constriction from the size of the currants. The ejected matter is usually copious, is readily vomited without much nausea or straining, and patients feel a great sense of relief after it.

The *diagnosis* is not always as readily arrived at as might be judged from the number of mechanical means for this purpose. The objective examination by palpation and percussion leads in well-marked cases at times easily to a satisfactory conclusion, especially if the stomach is filled by fluids or gases. To that end it is often of great service to give in different potions about thirty grains of sodium bicarbonate and tartaric acid, when, as a rule, the inflated stomach may be palpated with facility. If, in addition to this, a quantity of water, about eight to twelve ounces, is swallowed and the line of dulness by percussion is located below the umbilicus, the diagnosis is pretty certain. Adhesions from perforating ulcer or carcinoma may, however, embar-

rass the result under such circumstances. Perhaps the most satisfactory method for ascertaining the capacity of the dilated stomach in complete pyloric stenosis is to fill the stomach with water through the tube and to measure the fluid as siphoned out therefrom. In atonic dilatation or with perforating ulcer or carcinoma this, also, is valueless. The examination of the stomach for dilatation by means of the sound does not possess the value claimed for it, as displacement of the viscus may simulate the pathological condition in question.

The general condition of the patient suffering from gastric ectasis is always more or less impaired; emaciation rapidly takes place; the bowels are obstinately constipated and will not be open for days and weeks; the urine is generally small in quantity and of neutral or alkaline reaction. The total absence of hydrochloric acid from the stomach in connection with the other symptoms above enumerated would certainly point very strongly toward an existing dilatation as probably arising from pyloric obstruction. Functional dilatation may be accompanied by subacidity, and in these cases the existence of dilatation together with the degree of ectasis can be arrived at satisfactorily only in a minority of the cases.

The *prognosis* of atonic or functional dilatation of the stomach may be viewed as favorable—*i. e.*, readily yielding to proper therapy. Gastric ectasis from cicatricial pyloric stenosis is more serious, but with proper management much can be done toward keeping up nutrition and preserving life. The recent operative treatment in this condition, as practised by Loreta in Italy, and Bull and Barton in this country, has been so successful that a great future may be promised for it. The prognosis of dilatation from carcinomatous stenosis of the pylorus is most unfavorable, though pylorectomy has produced some favorable results.

The *treatment* for atonic gastric ectasis is one that depends largely on a proper diet. Albuminous substances, such as eggs, broths, or scraped meat, should be freely exhibited, followed by dilute hydrochloric acid with strychnine or nux vomica. Carbohydrates should be prohibited, nor should milk or other beverages be taken in quantities; saline laxatives are best indicated to keep the bowels solvent; the faradic current applied to the epigastrium will prove of vast value; the catarrhal condition should receive attention, as pointed out under that head.

In the graver or secondary dilatation the treatment must depend upon the removal of the accumulated food by means of the stomach tube and the daily repeated lavage. While the pyloric stenosis is not directly benefited by this, the hyperæmia and œdema accompanying it can be much relieved by this treatment. In a case now under my care in the German Hospital, complete stenosis no doubt existed; no alvine dejecta had passed for about two months, all of the food taken was vomited at intervals of from one to two days; the patient's weight from 156 pounds sank to 89 pounds, and corresponding debility was manifest. By frequent lavage and the administration of albuminoid food with HCl, and nutritive enemata of carbohydrates (glucose), the patient gained in strength and weight. At one time during the treatment he washed out through the tube an apple-seed, though he had not eaten apples for two months past. Alvine discharges soon became regular, and are now formed, while the patient's weight to-day is 129 pounds.

Though I do not regard the stenosis in this case as cured, the obstruction arising from congestion or œdema must have been certainly relieved to admit of good gastric digestion, and the dilatation has undoubtedly been improved, as the gastric secretion is beginning to show traces of HCl, and the patient has appetite and digests food without medicinal aid.

That all of these cases should ultimately be treated in a surgical way, I fully believe, and when I consider the good result achieved Dr. Barton in his recent case, patients should be encougaged to that end. Much, however, can be done medically to relieve the patient, and this should be exhausted or done preparatory to operative interference. It has been my habit in such cases to wash out the stomach daily with 3 to 4 pints of a dilute solution of borax, to give broths with egg and scraped beef as nourishment, followed by HCl with nux vomica; and to administer enemata of from 4 to 6 ounces of glucose thinned with a little warm water and admixed with ½ to 1 ounce of beef peptones.

In the dilatation depending upon carcinomatous stricture of the pylorus, little is to be hoped from treatment of any kind other than intended to palliate the pain and relieve the most urgent symptoms.

CANCER OF THE STOMACH.

Cancer of the stomach is the gravest and most fatal of all gastric affections. The *etiology*, like that of all malignant neoplasms, is entirely obscure in this affection as well, and though Hauser called attention to the atypical epithelium arising from cicatrices of gastric ulcer, no direct connection between the two has as yet been established. It occurs generally between the ages of forty and sixty, but much younger persons are found suffering from it at times; the hereditary tendency has been received with some credence; the duration may be from one to two years, rarely more.

Gastric carcinomata are quite frequent, and it is claimed that they comprise about one-third of the total number of malignant growths. They occur more generally in the pyloric region, next frequently in the lesser curvature, but are also found in the fundus and cardia. Arising from the mucous

coat they present either as circumscribed tumors or diffuse infiltrations progressing to the submucous and muscular coats, and are sometimes the cause of adhesions to neighboring viscera. The scirrhous, medullary, and colloidal are the principal varieties observed; they are, as a rule, in the advanced state, broken down on their surface, which is clean, owing to the digestive action of the peptic secretion.

Symptoms.—Their effect upon the patient marks a steadily downward course, leading to rapid emaciation, cachexia, and anæmia; the dyspeptic symptoms are not always alike, but are probably the first to occasion complaint—consisting of anorexia, gastric pressure increasing to pain, and in many cases, but not in all, there is characteristic vomiting. Hæmatemesis is perhaps more frequent, but not nearly as copious as in ulcer, and the small quantities of blood are generally reduced to hæmatin, which gives the ejected matter the appearance of coffee-grounds. To confirm the presence of blood the hæmin test should be made, and the Teichmann's crystals of hæmatin hydrochloride developed for microscopic recognition. The vomited matter rarely, if ever, shows cancer cells or particles characteristic of cancerous structure, and the sarcinæ, etc., are seen, as in other cases of dilatation or apepsia.

An important symptom accompanying many cases of gastric carcinoma is the anacidity frequently observed in connection with it. While it was held by von den Welden that this is characteristic of cancer of the stomach, it was found that in some cases of carcinoma there was not alone no anacidity, but even hyperacidity. The ingenious experiments of Riegel, which demonstrated the impairment of normal gastric juice by the proteid character of carcinomatous fluids, are negatived by the recent experiments, which show that all albuminous substances will cause the same result. In my opinion only such cases of gastric cancer can produce anacidity as cause pyloric stenosis and dilatation in consequence thereof; and that carcinomatous disease in other parts of the stomach may not only not diminish the HCl acidity of the gastric secretion, but like gastric ulcer may actually increase it—an important point in the diagnosis of location.

The palpation of the stomach leads often to the *diagnosis* of tumescence directly attributable to malignant disease, but the absence of tumescence is by no means a proof of the non-existence of the former. Percussion of the stomach is of little, if any, positive diagnostic value. The alvine discharges are much inhibited in the pyloric obstruction from cancer, but otherwise offer no diagnostic points, nor does the urine. The heart and pulse bear the general character of anæmia and inanition, but have no other bearing on the pathological condition.

As we have already indicated, the *treatment* of gastric carcinoma can at best be one intended to palliate the suffering and meet the symptoms. These latter have been already referred to in the treatment of dilatation from pyloric obstruction, to which should be added morphine hypodermatically for pain; and for the obstinate vomiting, ice, chloral, creasote, or Lugol's solution. Lavage must here also be the sheet-anchor; proteid diet, rectal alimentation, and supporting treatment of all kinds, and stimulants, especially effervescent wines, are about the only means to prolong the existence of suffering to which these patients seem condemned.

It is as yet a matter of doubt if operative interference in pyloric carcinomata will prove of great value. That some of the cases so treated have done well throws out a ray of hope, which, even if it does not realize curative results, for a time relieves the sufferings incidental to this disease.

333 SOUTH TWELFTH ST., PHILADELPHIA.

SOME THOUGHTS ON SURGICAL SHOCK, WITH SPECIAL REFERENCE TO BRAIN AND SPINAL OPERATIONS.

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THE writer has had the opportunity of witnessing many of the remarkable brain and spinal operations lately performed in Philadelphia, and the following thoughts have arisen as a result of this experience. It is not intended to encroach upon the field belonging properly to the surgeon, but merely to make a few suggestions that may possibly be of value in the desperate cases occasionally submitted to the knife.

Observation shows that operations upon the cerebrum, the cerebellum, and the cord are, as a rule, attended by the most profound shock. Evidently this shock is the greatest danger which the surgeon has to meet. Indeed, in the various fatal cases which the writer has seen, it was the chief, if not the only, cause of death. It is so formidable that every resource at our command should be exhausted to meet it; nothing should be neglected. In some cases a hair might turn the scale, and it is for this reason that the following suggestions are made.

With regard to the special preparation of the patient the judgment and experience of the surgeon should be deferred to. I should like, however, to direct attention to a point the value of which was long ago recognized by Travers[1] and which was more recently reiterated by Jordan.[2] It is to place the patient in a condition of rest and quiet by putting him to bed for several days or a week before the operation. This method appears to me to be of really great value. Certainly it promises to diminish the general nervousness and irritability of the patient. It promises to calm and steady and to im-

[1] Travers: Constitutional Irritation, 1827.

[2] Jordan: Hastings' essay, on Shock.

prove all of the various functions. While it soothes, it at the same time elevates the general level of vitality and in a measure simulates a brief course of rest-cure.

Further, by being in bed the patient gradually becomes accustomed to the idea of being sick. Even the thought of the operation becomes more and more familiar, and, under the toning influence of a properly trained nurse, loses more than half its terrors. Again, these preliminaries give abundant opportunity for a cheerful acquaintance with the surgeon and permit a grateful confidence to spring up in the heart of the patient. By this means, the psychic element of shock, so potent for ill, and which, I fear, frequently receives too little consideration, may be largely diminished.

According to circumstances, the rest-cure may be still further simulated by the addition of massage and even of faradism. Forced feeding to within twenty-four or forty-eight hours of the operation may also be carried out. Strict isolation is, of course, uncalled for, but emotional friends and relatives should be excluded. No one should be permitted to see the patient unless by the consent of the doctor or a responsible nurse. To patients who have been for some time bedridden, and to those in whom from the very nature of their affection the general nervous tone has become much depressed, these suggestions are especially applicable.

Turning now to the immediate prophylaxis of shock, it has occurred to me that the hypodermatic injection of strychnia just before the operation would be of value. I am not aware that this use of strychnia has thus far been advocated. To some extent, but much less than it should be, it has been used in the treatment of the fully established shock. Evidently if shock be due, as there is every reason to believe, to a more or less marked general paralysis of the nervous system, strychnia is strongly indicated. It is its use as a prophylactic to which I especially desire to call attention.

I would suggest that it be used somewhat as follows: According to the nature of the operation, one twentieth to one-tenth of a grain of the sulphate should be injected just as full etherization is reached. Should the operation be excessively prolonged or should shock of great intensity be developed, the dose should be repeated. Its use subsequent to the operation must be governed by the condition of the patient and by the amount already administered.

There can be no doubt that a tolerance to the action of strychnia is to some extent established in shock and that relatively massive doses will be well borne. I should regard one-fifth or one-fourth of a grain in divided doses distributed over several hours as perfectly safe. It is not improbable that in very profound shock even more might be borne.

Its use and its dose previous to the operation must, of course, depend upon the character and probable extent of the latter. In relatively simple procedures it may very properly be omitted, and, if necessary, administered during, or subsequent to, the operation, as the indications arise. For instance, its use is not strongly indicated in interference with the cortex in the frontal or motor regions; provided, of course, that the interference be not too extensive. Observation inclines me to the view that the shock following operations upon the cerebro-spinal axis deepens as we go from the frontal regions of the brain backward to the occipital lobes; further, that it is still deeper in the cerebellum, and reaches its acme of intensity in the cord. If this be true, a ready rule is furnished not only for the use but also for the dosage of strychnia.

It is difficult, finally, to conceive of any condition in which it could possibly be of harm, and only in positively reckless hands could there be any danger whatever.

With regard to the matter of etherization, there can be no doubt that the too free administration of ether is not infrequently harmful and it is very probable that it occasionally plays no insignificant part in the collapse of the patient. The rule that only the minimum quantity of ether necessary to produce and maintain anæsthesia should be used, is to be observed with all possible strictness. In a desperate case this may be one of the apparently unimportant measures that may determine the successful issue, and if possible the services of some one especially skilled in the administration of anæsthetics should be secured.

Passing now to the management of the fully established shock we think at once, in addition to strychnia, of the various cardiac stimulants, alcohol, digitalis, and ammonia. With regard to the use of these drugs I shall have but little to say, as I have elsewhere[1] considered them to some extent.

Alcohol is, of course, of the greatest value, but, as a rule, the patient is nauseated after the operation and unable to retain it, even when mixed with carbonated water or administered in the form of champagne. Hypodermatically it must give way in point of value to digitalis.

If the symptoms of heart failure be at all pronounced, digitalis should be given, and in doses large enough and repeated with sufficient frequency to produce an appreciable effect on the pulse. As in the case of strychnia, there is established in profound shock a tolerance of digitalis so that the latter may be administered in quite large doses. A half drachm of the tincture every half-hour has been

[1] Railroad Shock and its Treatment. Annual address before the Lehigh Valley Medical Society, Aug. 16, 1889. Therapeutic Gazette. (In press.)

given for four hours with the result of saving life.[1] Hypodermatically, ten to fifteen minims should be given, repeated every twenty minutes, until some response is detected in the pulse.

Of ammonia as a remedy in shock I entertain but a poor opinion. Its action is altogether too fleeting, and if used at all it should only be as an adjuvant to the other remedies.

There is, however, one drug that, judging from every indication, should be of especial value, and which, strange to say, is almost unappreciated. It certainly is by far too little resorted to. I speak of musk. Musk—that is, the genuine drug—is not readily obtained and is very expensive, but there is no other drug that promises so much. It acts as a gentle and sustaining stimulant to the nerve centres. It calms and steadies. It quiets the restlessness of the patient, allays the vomiting, and arrests the distressing hiccough. It should be administered after the manner recommended by Dr. H. C. Wood—namely, suspended in a little thin mucilage and by the rectum. In shock, of course, the dose should be relatively large, say fifteen to twenty grains; and a little laudanum, say fifteen drops, may be added with advantage. Opium in full doses, however, should rather be avoided, even in extreme restlessness, as there is good reason to believe that in shock the resistance to opium is much diminished. Exceptionally its use may be counselled, but never without risk.

Another remedy of undoubted usefulness in shock is atropia. As well known, it is a respiratory stimulant and also a stimulant to the vaso-motor nerve centres in general. The patient is, as a rule, bathed in a profuse and exhausting sweat, and in such a case atropia is especially indicated. One-sixtieth of a grain should be given, and repeated, if at all, in diminished dose and at relatively long intervals.

However, one of the most striking and most dangerous symptoms of shock still remains to be combated, and that is, the fall of temperature. The moment we touch the patient we realize how very cold he is—cold and damp. It is always very marked; sometimes the temperature falls as low as 95°.[2] Application of external heat is of the utmost consequence. However, the amount of good accomplished by such appliances as cans and bottles of hot water is very limited. Their action is confined to but small extents of surface, and the effect on the body temperature as a whole is very meagre. The hot bath, which may be resorted to in desperate cases, is very objectionable; first, because it necessitates a large amount of handling of the patient; secondly, because in some cases it may interfere with the dressings; and lastly, because the heat applied is moist and not dry heat. It is preëminently necessary that the heat should be *dry* heat, and the problem arises: By what means can dry heat be applied to a large extent of surface and without inconvenience to the patient?

Some time ago I was called to a patient in collapse during an attack of pleurisy. The temperature had fallen to 96.5° and the general condition was alarming.[1] I at once procured an ordinary hospital water-bed, such as is used for fractures and dislocations of the spine. It was filled with hot water, covered by several layers of flannel blankets, and the patient placed upon it. In a short time reaction set in, and the temperature rose to a little above normal. The result was, indeed, gratifying in the extreme. Certainly no other method promises to yield such excellent and immediate results, and, it seems to me, that in desperate surgical procedures in which profound shock may be expected, the hot-water bed should be kept in readiness and the patient placed upon it as soon as the operation has been completed. Should it be too hot, extra layers of blankets may be first applied. With care, however, and the exercise of a little judgment, a proper temperature may easily be obtained.

Let us suppose, now, that the surgeon is about to perform a serious operation, say trephining of the spinal canal with possible opening up of the dura. How shall he proceed? Let us rehearse a moment the steps that he would take. First, the preliminary rest should be undertaken according to circumstances, as pointed out; secondly, excessive care is to be used in the administration of ether; thirdly, etherization being complete, one-tenth of a grain of strychnia is to be injected hypodermatically, and repeated, if necessary, in the manner suggested; fourthly, the operation being complete, and the shock established, the patient is to be at once transferred to the previously prepared hot-water bed, the head being maintained a little lower than the body. Shock continuing unabated, digitalis and atropia are next to be used hypodermatically, and at the same time musk is to be injected, as suggested, into the bowel. If the latter is not to be obtained, warm strong black coffee is to be used in its stead.

The hypodermatic injection of ether I do not believe to possess much utility. If it acts at all, it must be in a reflex way by the local irritation it produces.

The above thoughts are expressed with all deference to the experience of surgeons, and are thrown out merely as suggestions. Should they result in increasing the percentage of recoveries by ever so small an amount, the writer will feel amply repaid.

[1] Lauder Brunton: Shock and Syncope: the case of Wilkes.
[2] Cheever: Boston Med. and Surg. Journal, 1888, cxix. 293.

[1] Also mentioned in address before referred to. Loc. cit.

THE MINERAL SPRINGS OF COLORADO.[1]

BY CHARLES DENISON, M.D.,
OF DENVER, COLORADO.

(Concluded from page 290)

THE CLIMATE

of Idaho Springs is decidedly stimulating, bracing, and exciting. Like most mountain regions of its altitude, there is an electrical condition of the atmosphere accompanied by high tension and excess of ozone. In these regards, as well as in the greater fickleness of the winds, and the usual lower average temperature, it differs from the climate of the "plains," over 2000 feet below. Otherwise there is a great similarity; that is, as to the uniformly dry atmosphere, the usual gentleness of the wind, and the marked predominance of sunshine over cloudiness. Many residents in the mountains claim that the summers are cooler and the winters warmer than out on "the valley," as the level country along the eastern base of the Rocky Mountains is sometimes called. Since this claim has to be admitted for the summer temperatures, it cannot be so for the winters, because the annual mean for Denver is 49.2° and for Idaho Springs, 45° F. The winters in the mountains may be warmer in proportion to the summers there, but not enough so more than to neutralize the annual difference between Idaho Springs and Denver, of 4.2 degrees.

This is the average of two years' observations at hand, taken by Mr. I. Zeller and Mr. C. E. Barber, of Idaho Springs. While the annual mean for Idaho Springs is four and a half degrees colder than that of Denver, it is only two degrees colder than the average for Manitou.

It is well to remember, when speaking of the average temperatures of such elevated places, that the rule for computing them, as practised by the Signal Service Bureau, involves an injustice, so to speak, to the day-time records, when people are out of doors, in that the cold 9 P.M. observation is doubled and then added to the cold 7 A.M., and the one warm 2 P.M. observation, and the sum divided by four, to get the daily mean. The greater the elevation above the sea, the more is this inconsistency apparent, especially in mountainous sections, where the towns located in the valleys do not begin to feel the sun's influence till after the morning observation at 7 o'clock. There is not so much discomfort in living in the mountains as the record would indicate.

In considering the climate of Idaho Springs, it is important to note a peculiarity in the environment of the place. The town lies nearly in the centre of a loop, open toward the east, made by a considerable curve of the main range of the Rocky Mountain chain. There is a certain protection from this lofty ridge, though it be twenty miles away, in that many of the strong winds which sweep over the mountains, the southerly and northerly more especially, are deflected to one side or prevented from descending to the valley. Mr. Barber, the observer there, has noted this effect. He has often seen that at the same time the upper clouds would be passing rapidly to the north or south, the moving of the foliage on the mountains would indicate another direction of the wind, while down in the town a light breeze would be blowing in still another direction either east or west—*i. e.*, in the direction of the valley. There is no doubt that the mountains surrounding Idaho Springs have a decided influence in tempering the winds and furnishing a certain stillness of atmosphere which is desirable in very cold weather.

A good way to understand the climate of a given locality is to divide its consideration under the heads of the seasons. The winter and summer variations are thus emphasized and one gets a good general idea of the whole year.

Winter.—December is ushered in by some delightfully pleasant and bracing weather. It is not uncommon to see the uniformly sunny autumns in Colorado, with gentle breezes and very little rains, extended over into winter, even into January, after the reports of storms, blizzards, and snow have been received from different parts of the East. The average records for two winters at Idaho Springs give, on the basis already explained, winter mean temperature, 29° F. 7 A.M., 24°; 2 P.M., 39°, and 9 P.M., 26°, with a mean of daily maximum 42°, and of minimum 18°. The precipitation is less than two inches of melted snow, notwithstanding there is an average of about twenty days upon which snow falls. Many of these storms are very light or transient, the sun coming out and shining a half day or more thereafter. The relative humidity of the atmosphere for this season is about 50 per cent.

In December the wind blows at times, but not with great force, and the west wind is apt to prevail in the morning till nine o'clock, when the direction is changed, and the east wind blows very gently till 3 P.M., when the calm of evening comes on. It would be interesting to make comparisons between the winter weather at Idaho Springs and that at Maloja, in the Upper Engadine, where some invalids pass the winter. The difficulty is, the records at hand of the Swiss resort are only for day temperatures—9 A.M., noon, and 3 P.M.—and no exact comparison is possible with our 7 A.M., 2 and 9 P.M. observations. Moreover, even with this advantage for the Maloja Station, the Colorado resort gives higher temperatures for all the averages given as well as for most of the maximum and minimum data recorded. Yet the Maloja is only 6000 feet above sea level, while Idaho Springs is 1500 feet higher.

[1] Read before the American Climatological Association, June 25, 1889.

One finds an explanation of this difference in temperature and rigor of climate in the more northern latitude and greater exposure to sea influences of Maloja, where the limit of tree growth—"timber line"—is at or below the elevation of 8000 feet, while in the Colorado resort, "timber line" is yet 3500 feet higher up, or 11,000 feet above sea level. The writer suggests that it might be as well to reckon both down from "timber line" and up from sea level, when determining the fitness of a given high altitude resort for invalids. From the foregoing it would appear that Idaho Springs, though higher in fact than Maloja, yet is not as elevated so far as the sensations of the individual are concerned. Surely those conditions of climate which limit vegetation, even the growth of the hardiest plants, for instance, scrub oak, the quaking aspen, and the mountain pine or spruce, which hug the mountain sides as though they were afraid to venture far into the surrounding atmosphere, must have an analogous influence upon the human organization. This, and other conditions pertaining to the latitude and the inland protection of the Rocky Mountain region from the influence of the ocean, lead the critic to estimate that six thousand feet elevation in Switzerland is equivalent to nearly eight thousand in central Colorado.

Spring.—It is difficult to find a place where spring is the pleasantest part of the year. In the temperate zone it is usually the breaking-up time—a season akin to the annual house-cleaning, which everybody dislikes. In the mountains the winds are fickle and uncertain, the snows are frequent, though very light, the daily variations of temperature considerable, yet little felt, and though it is often cloudy, there is a large preponderance of sunshine; in fact, all the conditions of the weather betoken a variable and elastic state of barometric pressure, such as might be expected in the attenuated atmosphere of the mountains. It has only lately been recognized that there is benefit and not injury in these frequent electric and barometric changes which are common attributes of the most stimulating and tonic extremes of climate, viz.: sea and mountain air.

The purification of the atmosphere and the oft-repeated renewal of the tonic and electrical conditions are processes constantly impressed upon the mind of the inquirer into high altitude effects, whether he explains it on the theory that the mountains are always giving off the electric force engendered nearer the centre of the earth, or whether he sees in the positive electric state of the dry air the facility in the mountains for an easy interchange between this and the negative electric state of the ground.

Notwithstanding this element of change at Idaho Springs, there are interspersed in the weather records for spring, continuous days and even weeks of sunny beautiful weather, when the day temperature of the air, the freedom from dust or any impurities in the atmosphere, and the little or no snow on the ground to impede mountain climbing, are all that could be desired.

In spring, while rain or snow at Idaho Springs falls on thirty-five days, there are about thirty clear and forty fair days, and the temperature no longer reaches zero—in fact, even during winter it has not averaged so low four times a year for three years. The total cloudiness and precipitation are about the same as for winter, though less than for the summer season. The average temperature for this season is about the average for the whole year, 45° F., made up of the three observations—7 A.M., 39°; 2 P.M., 56°; 9 P.M., 42.2°. The mean of maximum temperature is 59°, and of minimum, 33° F.

This is the time of year when many invalids, who are suited to a higher elevation than Denver, may early seek the greater benefit to be expected from an additional height. It is sometimes better for them not to remain at a level to which they have become fully acclimated and where the good results already enjoyed are in danger of being neutralized by the heat of the approaching summer.

Summer.—The mountains of Colorado are resorted to by many tourists during the summer time. There are not only the invalids from the plains, who have been sojourning in the State, but the newcomers—"tenderfeet"—from the East, together with many inhabitants of Denver and other towns seeking a whiff of mountain air and to enjoy a rest among the hills. A vacation "in the Rockies" with cool nights and bright sunny days will re-invigorate them for another year's work. It seems to the writer that there is a difference between winter and summer, so far as the sensations of a high climate are concerned, that is equivalent to a difference in elevation above sea level of about 1500 feet—that is, 6000 feet in winter are equivalent to 7500 in summer.

The lower temperature; the drier atmosphere, as to actual weight of vapor in the air, and the more invigorating or electric condition (all of which elevation insures), are also, to a certain extent, the accompaniments of the winter season. Therefore, in Colorado, and happily in contra-distinction to the necessities of the climate on the Continent of Europe, the invalid can go up higher instead of down lower when warm weather commences, and thus obtain the cooler, drier, and more stimulating climate he needs. The facilities for camping out in the summer time are unsurpassed by any country, because of the uniform dryness of the air, the porous, sandy condition of the soil, the natural drainage of all sections, and the comparative freedom from the annoyance of insects.

The average for three summers, 1886 to 1888,

gives a mean summer temperature of 62.5° F. at Idaho Springs, the mean at the three hours of observation being, 7 A.M., 59°; 2 P.M., 74°; and 9 P.M., 59°. The mean of the maximum is 77.2°, and of the minimum temperature 42.6°. The precipitation is about seven inches of rainfall, and the cloudiness about forty and the relative humidity about fifty per cent. The showers of summer are more apt to be genuine rain-storms, which happily come and go quickly, allay the dust and are prevented from contributing much moisture to the air because of the quick drainage and the character of the soil.

Autumn.—The fall is the most attractive of all the seasons. The unprecedented number of bright sunny days; the changing foliage with beautiful autumn tints; the absence of dense clouds; the continuance of the unsurpassed sunsets and sunrises, together with the cool nights, when sleep is never more refreshing than after a healthful and invigorating hunt or ramble among the hills—all are but parts of an experience which will never be forgotten by the tourist or invalid who spends an autumn in the Rocky Mountains.

Unfortunately, however, the travelling public, and especially the invalid portion, are a restless set of mortals. No sooner have the autumnal tints begun to appear, or the frosted leaves to fall, than the demands of business call away the tourist, homesickness, or a restless fear of "catching cold," seizes the invalid, and, like a flock of sheep, they all go together and hotels are deserted. Invalids will return to indoor and confining occupations, which they had better have never begun; while others, after loafing about the town till colder weather appears, will catch the "California fever," only to return to Colorado in another year, regretting they had not followed the doctor's advice. Some, however, will systematically continue to live an out-of-door life, which in this climate their experience has proved to be capable of arresting or eradicating their disease.

The population of Colorado has been largely augmented by this class of recuperated invalids. Consumptive patients, as a rule, who have received benefit in the mountains, come down to the plains too soon in the autumn. It would be much better for some of them did they consider their summer's improvement as a stepping-stone or preparation for still greater advances on the road to health.

The records of three autumns, '86 to '88, give a mean autumn temperature of 44° F., taken from the three daily averages, 7 A.M., 38°; 2 P.M., 56°; and 9 P.M., 41°—the means of the daily maximum temperature being 60.4°, and of minimum 33.4°.

The rain falls on only fifteen days, and only four or five days are put down as cloudy, the rest of them being fair or clear. The cloudiness is noted as about thirty-five per cent. of the time, and the average precipitation is between one and a half and two inches of rainfall during the whole season. This is a very good showing, and these are probably as accurate records as can be obtained from the average voluntary observer.

A NEW POSITION FOR FACILITATING THE OPERATION FOR VESICO-VAGINAL FISTULA, AND OTHER OPERATIONS ON THE UTERUS AND VAGINA.

BY J. F. HEUSTIS, A.M., M.D.,
PROFESSOR OF SURGERY IN THE MEDICAL COLLEGE OF ALABAMA.

THE idea of Sims, of utilizing atmospheric pressure to dilate the vagina, is "at the bottom" of all the positions for bringing the parts clearly into view and easily accessible. His position is the one commonly used in connection with his speculum, and the traction of the perineum upward with a speculum of variable width, form, and adjustability completes the necessary opening and stretching of the vagina. Bozeman makes the atmospheric dilatation more efficient by holding the patient in a kneeling position by a special apparatus of his devising.

Having had great difficulty in keeping strong patients in Sims's position, I have devised what appears to me to be the best and simplest method yet. I was driven to it by an operation for vesico-vaginal fistula on a woman of great size and voluminous vagina. It seemed impossible to complete the operation on account of her unruliness, as well as the bad character and situation of the fistula. Knowing that the successful dilatation and patulousness of the vagina were dependent on atmospheric pressure, and that to obtain this the belly should have room to hang clear of the table (so that the gravitation of the bowels would create a vacuum), I had a thick, *hard* pillow shoved under the upper part of her thighs, reaching to the pubes, but not to the pendulous part of the belly, the woman being prone, with her legs stretched out straight. It answered the purpose perfectly. The vagina was so widely open and expanded that the operation was done with the greatest ease. All the advantages of Bozeman's apparatus were obtained, and all the difficulties of Sims's position done away with.

On another occasion, not having the right sort of pillow at hand, I wrapped a large family Bible in a sheet and shoved it under the pubes and upper part of the thighs, testing the elevation of the belly by sliding my hand beneath it. As it is generally easy to get a big Bible or Webster's unabridged dictionary, or a hard pillow, it brings the accomplishment of our purpose within easy reach.

The prone position, with the limbs stretched out, is much easier maintained than the constrained one of Sims or the position on the knees of Bozeman, which, of course, cannot be kept up with the patient under chloroform without his apparatus.

Simple as this procedure is, I have seen no mention of it anywhere.

MEDICAL PROGRESS.

The Value of Caffeine in Adynamic Conditions.—In spite of the continued endeavors of DR. HUCHARD, of Paris, to demonstrate to the medical profession the value, and simultaneously the harmlessness, of large doses of caffeine, still there seems to be a prejudice against the drug and a ruling idea that its free use is likely to produce unpleasant cardiac symptoms. New remedies, of doubtful efficacy, that are springing up daily, find no lack of advocates, whilst many comparatively older drugs do not receive the attention that their curative properties warrant. This is Huchard's complaint, as he once more brings to the notice of the profession the value of large and repeated doses of caffeine in all adynamic conditions. As an example of its efficiency, Huchard, in the *Therap. Monatsheft* for August, cites the case of a gouty man who was suffering from a right-sided pneumonia, and who, twelve days later, developed an inflammation of the left lung. The patient fell into a condition of extreme adynamia, and collapsed. During the following thirty days, Huchard gave this patient 95 hypodermatic injections of caffeine, of 4 grains each, 51 injections of ether, and 19 of trinitrin. The result of the treatment was satisfactory beyond all expectations. The author quotes five other cases in which the value, as well as the harmlessness, of the drug in large doses is clearly demonstrated. He employed it in four other cases of pneumonia; in such instances, "the disease is in the lungs, but the danger in the heart." Huchard does not hesitate to employ subcutaneous doses as high as 31 to 48 grains. The reported efficacy of daily doses of 3 to 5 grains is entirely illusionary.

Huchard's experiments upon animals proved that the drug acted upon the central nervous system before it influenced the heart. There is, therefore, a marked difference between the action of digitalis and caffeine. Digitalis affects primarily the heart, caffeine the nervous system.

In conclusion, the author asserts:

1. That the great value of large doses of caffeine, given subcutaneously, in all adynamic conditions is unquestionable.

2. That large doses of caffeine are entirely harmless.

Toothache Drops.—The *Therap. Monatsheft* for August gives the following:

℞.—Extract of opium, Camphor trit., Balsam of Peru . . . āā 8 grains.
Mastic . . . . . 15 grains.
Chloroform . . . . . f℥iij.—M.

Soak a pellet of cotton in this mixture and place it in the cavity of the tooth.

Asthma and the Uterine System.—DR. PEYER has recently written in the *Berliner Klinik*, Part 9, 1889, on an affection which he terms sexual asthma. He maintained that asthma was always neurotic, and that in different subjects asthmatic convulsions were brought on by the influence of different physical functions. In two young married women, coitus caused violent attacks of asthmatic sneezing. In another case the patient suffered from uterine fibroid, with severe asthma, which disappeared after the removal of the tumor. A patient was subject to violent asthmatic fits; on her becoming pregnant for the first time, the asthma was completely cured. In a similar case of asthma the patient suffered from chronic metritis. When the uterine affection was cured, the asthmatic complication disappeared. In all Dr. Peyer's cases the patients were more or less hysterical, and in two there was a distinct family history of neurosis. The physician must be careful now to distinguish between the possible coincidence of true asthma and disease of the sexual functions and the alleged form where the former is an effect of the latter. In the case of coincidence it is perfectly easy to understand that any aggravation of uterine or ovarian disease and any irritation of the sexual functions might aggravate the asthma. The other condition is less easy to understand, and very hard to prove in a scientific manner.—*British Med. Journ.*, August 31, 1889.

The Ptomaine of Rabies.—Recently, DR. W. ANREP reported to the Medical Society of St. Petersburg the results of numerous experiments with rabies. He claims to have discovered the ptomaine causing this disease. The results of his experiments, as stated in the *Centralblatt f. Bakt. und Parasitk.*, of July 19th, are as follows: From the brains of rabbits which had died with hydrophobia he extracted a substance of an alkaloidal appearance, which proved to be a most poisonous ptomaine. One thousand brains contained only three-quarters of a grain of the poison. Both the pure ptomaine as well as the salts thereof crystallize in water. Its chemical composition is as yet undetermined. Minute doses (about $\frac{1}{1000}$ to $\frac{1}{750}$ of a grain), given to animals, produce a rise of temperature, restlessness, quickened respiration, and palpitation. Doses of $\frac{1}{600}$ to about $\frac{1}{500}$ of a grain produce, in addition to the above-mentioned symptoms, difficulty in breathing, slight convulsions, slight heart failure, and general weakness. Larger doses, $\frac{1}{250}$ to $\frac{1}{150}$ of a grain, produce sinking of temperature, paresis of the extremities, flow of saliva, and death from asphyxia. In other words, the ptomaine can produce all the symptoms of rabies.

A Minimum Cauterizer. — The finest cautery, either Paquelin's or an electric one, causes an eschar three or four times its diameter, and though this is not of much consequence when diseases which themselves leave a scar are being dealt with, it is otherwise when a rosacea or a capillary nævus is so treated. TAENZER, in the *Monatsh. f. Prakt. Derm.*, has discovered a plan by which a cautery causing a much smaller eschar can be made, and has designed one of the following principles: A finely pointed copper needle, set in an isolated holder, is surrounded by a platinum spiral, which does not quite come in contact with the needle, and does not extend to its point. When the spiral is connected with both poles of the battery it becomes red-hot, but it does not raise the temperature of the included needle so high. The copper needle does not become red-hot, merely very warm. In addition, the diameter of the included needle is much less than in any other form of electric cautery. These two

combined factors, the small diameter of the cautery and the low temperature, render it possible to produce such a small eschar, that it is less than the head of the smallest pin, and the scar which remains is invisible without a lens. With this instrument one can fearlessly cauterize wide areas, as, for example, port-wine marks on the face; but care must be taken not to crowd the eschars too closely together. The needle must, however, be brought to the proper heat before cauterization is begun, and this can best be estimated if the needle can be easily withdrawn from the skin. If the needle is not hot enough, it can only be extracted with pain and difficulty.

Cultures from Vaginal Secretions.—DR. E. LEGRAIN, in the *Centralbl. f. Bakt. und Parasitk.*, of July 19th, describes several cultures which he has obtained from normal vaginal secretions. The cells themselves are round, and have a diameter of from 6 to 8 μ. In old cultures spindle-shaped microörganisms are found, which reach a length of 15 μ. Cultures in gelatine, after one week's time, bear a great resemblance to those of anthrax; later, however, these cultures lose their characteristic appearance. At a temperature of 95° or 97° the cultures grow with great rapidity. In a week large cultures will be formed on agar-agar; these are white, moist, and of a sticky consistency; after three weeks they cease to grow.

Salve for Infantile Eczema.—DELAPERT gives the following in the *Revue de Thèr. Méd.-chirurg.* of September 1st:

℞.—Boric acid . . . . . ℥jss.
Vaseline . . . . . ℥j.
Balsam of Peru . . . . grs. viij.—M.

Sig.—Apply the ointment frequently to all the affected parts.

Antiseptic Properties in Human Saliva.—From a series of experiments with the saliva of human adults, DR. FLORADIN has found that the sulpho-cyanide of potash, which is always present, has decided antiseptic properties.—*Prager med. Wochenschrift*, August 21, 1889.

Hysterectomy for Fibroids.—PROFESSOR ALBERT has published, *Wiener med. Wochenschrift*, ii., 1889, a paper on ten successful cases of abdominal section for myoma of the uterus. In all, the extraperitoneal method of treating the stump was adopted. The elastic ligature was used in order to prevent hemorrhage during the enucleation of the fibroid and the amputation of the uterus, the stump being fixed with pins. In one case an abscess in Douglas's pouch was laid open during the operation. The abscess was drained through the posterior vaginal fornix, the tube being removed on the fourteenth day. In another Professor Albert found a pancreatic cyst in close proximity to the uterine myoma, which was very large, and removed both. This remarkable case will, the author informed his readers, be published in full. In one (and apparently in only one) of the ten cases a myoma had to be shelled out of the hyoid ligament. The posterior layer of the ligament was sewn to the abdominal incision, and the cavity left between the layers was stuffed with iodoform gauze. Professor Albert rejected the use of sponges for cleaning the peritoneum, and attributed his success in no small degree to this new departure.—*British Med. Journ.*, August 31, 1889.

A New Antidote for Morphine.—From the result of numerous experiments, DR. BÓKAI has become convinced that pikrotoxin is the most rational antidote for morphine. The action of morphine and pikrotoxin upon the respiratory centre is antagonistic, as morphine causes paralysis of the respiration, and pikrotoxin prevents this. Furthermore, pikrotoxin acts powerfully upon the vasocontractive centres of the medulla oblongata, and in this way can rapidly decrease the abnormal blood-pressure caused by morphine. The action of the two drugs upon the cerebrum is also antagonistic. Bókai suggests the possible utility of the drug in chloroform asphyxia.—*Centralbl. f. klin. Med.*, August 17, 1889.

A Temperature of 112.8° F. followed by Recovery.—A case of fever is reported by DR. CARL LORENTZEN, in the *Centralbl. f. klin. Med.*, of August 17th, in which, although the temperature reached the astounding height of nearly 113° F., an ultimate recovery of the patient took place. We subjoin a brief history of the case:

The patient was a woman, aged twenty. As a child she had been "nervous," but there were no symptoms of hysteria. One night, after retiring, she suddenly coughed up half a tumblerful of blood. Inspiration became impossible; her face grew rapidly cyanotic. She threw herself back, and in a few moments the attack ended, and free inspiration was possible. Shortly after this she had similar attacks, which continued all night in spite of injections of morphine and ether, and cold douches, etc. During the long attacks she lost consciousness, and cyanosis was extreme. She complained of pain in the chest during deep inspirations, and this symptom always preceded an attack. Although carefully examined, no pathological conditions of the organs of respiration and digestion were found. The next day the attacks set in again, but were not so frequent. The urine, although frequently examined, was always found normal. For the next two months she had slight hemoptysis at intervals, and frequently was troubled by retention of the urine, which necessitated catheterization. Menstruation was normal. On the first of January, hemoptysis becoming more frequent, she kept her bed. During the early part of the month her temperature varied from 103° to 105° F.; patient was very weak, had chills, but did not perspire; loss of appetite, nausea, vomiting, constipation, and retention were among the symptoms complained of. During the night of the ninth the temperature rose to 112.8° F. in the rectum and 112.5° in the axilla. The patient was slightly delirious, but could be roused. Pulse 144 and full. Respirations 24 and regular. Difficulty in breathing began, but the attack was warded off by the inhalation of a few drops of chloroform. From then to the twelfth of the month the temperature remained very high, ranging from 104° to 107° F. After that, recovery was steady, and in a few months was complete. She is now enjoying excellent health.

Diagnosis was, of course, most difficult, and Lorentzen can only explain the erratic symptoms and temperature by putting them down to a hysterical origin.

Diplococcus Pneumoniæ the Cause of Peritonitis.—In three cases of peritonitis DR. WEICHSELBAUM has found the diplococcus of pneumonia unaccompanied by any other microörganism. In the one case peritonitis and acute

pneumonia existed simultaneously; in the other, pleurisy of both sides developed later; but in the third the peritonitis was unquestionably primary. Until now the streptococcus pyogenes has been regarded as the cause of peritonitis.—*Centralbl. für Chirurg.*, August 17, 1889.

Treatment of Cancer of the Rectum.—MR. T. R. JESSOP, in his address before the Section of Surgery of the British Medical Association, reported in the *British Medical Journal* of August 24th, in speaking of the treatment of cancer of the upper movable part of the rectum, said:

"If, then, we are satisfied that we have to deal with a case of cancer situated in the upper movable part of the rectum, knowing that complete obstruction may of a certainty be looked for, we shall probably all agree that it is desirable to make an artificial anus in the colon above as soon at least as the first symptoms of impending blockage appear, and in time to anticipate those further changes upon which the mortality of colotomy so much depends. And I will here state my opinion that in these circumstances the ordinary left lumbar colotomy is to be preferred, not only because of the facility with which the distended bowel is reached, but chiefly because the opening is made at a sufficient distance from the disease to insure its being found in a healthy state, free alike from cancerous infiltration and from those ulcerative changes which are apt to occur on the distal side of a strictured canal. That an early operation is called for is abundantly shown by a reference to the mortality in the cases just mentioned. Of the fifteen operated on for complete obstruction, five died within the first week, two within three months, and the remaining eight lived an average of rather more than twelve months, including one who survived the operation twenty-two months. On the other hand, of the nine operated on when no symptoms of obstruction were present, the earliest death did not take place for upward of two months, and the average of life throughout was a little over eleven months. And, again, reviewing a larger series, I find that out of fifty-four cases of colotomy taken from both my hospital and private note-book, performed for the relief of distress only, and not for obstruction, three only died during the first month, and in each of these there were some special circumstances, such as advanced age or great emaciation, to account for the early death. It is not in cases of complete obstruction or of threatened obstruction that any difficulty arises in the course to be pursued. When death is imminent and other means have failed to bring about relief, an opening somewhere and of some kind in the bowel for the exit of the pent-up excreta is obviously called for; and, as we have seen, the earlier that opening is made the more certainly will a lasting relief be obtained. And, following out the result of my observations, I would say that, given a diagnosis of cancer high up in the rectum—in the earlier stages, it is true, by no means always an easy matter—the duty of the surgeon would seem clear, namely, to recommend without delay the formation of an artificial anus."

Two Formulæ for Tooth-powder.—The following formulæ for acid and alkaline tooth-powders are given by DESCHAMPS in the *Revue de Thér. Méd.-chirurg.*, of September 1st:

Acid Tooth-powder.

℞.—Venetian talc	℥jv.
Cream of tartar	℥j.
Carmine	grs. v.
Essence of menthol	gtt. xv.—M.

Alkaline Tooth-powder.

℞.—Venetian talc	℥jv.
Bicarbonate of soda	℥j.
Carmine	grs. v.
Essence of menthol	gtt. xv.—M.

Creasote in Phthisis and Pulmonary Tuberculosis.—PROFESSOR SOMMERBRODT, says the *Medical Press* of August 21st, is an enthusiastic believer in the special virtues of creasote in phthisis and pulmonary tuberculosis. After an extensive use of the drug he gives us statistics of 5000 cases he has treated in hospital. He claims for it the power of improving the appetite, limiting the secretions, and diminishing the irritable cough. Its primary virtue, however, is its anti-bacterian property, which checks the progress of the baneful disorder. He supports his belief by pointing to Guttman's bacterian experiments with the tubercular bacilli, which he cultivated in glycerine and destroyed with a 1:4000 solution of creasote. From this experiment Guttman himself reasoned that, if he could get this quantity into the circulation without injury to the organism, he might be able to arrest the progress of the bacilli; but when he considered that a man of 60 kilos (160 pounds) contained 4615 grammes of blood (9 pounds) that would mean upward of one gramme of creasote to be present in the circulation before any good effect could be expected.

From this data Professor Sommerbrodt postulates his treatment, and has capsules made, each containing 0.05 gramme (0.77 grain). Three of these capsules are given on the first day, four the second day, five the third day, and so on till twenty-one—or twenty-nine, which he gave in three cases—are given, which would represent 1.35 grammes (21 grains) of the drug taken daily. This exactly completes Guttman's hypothesis of creasote, and Sommerbrodt believes that the facts of his results are perfectly consonant with Guttman's presumption. He points to a case sent him last year by a military surgeon. The patient was an officer in the army with marked tuberculosis, dulness over the fossa supra-spinata dextra, rhonchi, emaciation, increasing cough, with spit in which the bacilli and elastic tissue were to be found in great quantities. A year before this he had pleuritis sicca dextra.

On September 1st the creasote treatment commenced, and by September 18th he was using twenty capsules a day. On September 29th the morning sputa had very few bacilli, with a few fibres of elastic tissue. On November 1st he returned to duty, general health improved, dulness disappeared, and morning cough left him in a short time. During the whole winter he attended to his duty in the midst of snow and rain, during which period he gained twenty pounds in weight. By the month of April this year every sign of tuberculosis had disappeared, and perfect health seems now to be established.

From September 1st to June 1st he had used 5400 capsules, representing 270 grammes of creasote (nearly 7 ounces), and 1080 grammes of balsam of Tolu (33 ounces) with which it was combined. He assures us that he has treated many other cases in the same way.

Although actual experiments with animals do not confirm this opinion, Sommerbrodt is convinced that creasote does more than improve the digestion, according to Klemperer, or reduce the secretions, as Cornet believes. Sommerbrodt proposes that Koch should examine the blood serum of a patient after a month's use of gramme doses, and he thinks he will find that all bacilli have disappeared. He advises the creasote, which may be taken either in the form of capsule, tincture, or wine, to be administered immediately after food.

Treatment of Exophthalmic Goitre with Cannabin.—VALIÉRE in the *Revue de Thèr. Méd.-chirurg.* of September 1st, gives the following formulæ for the treatment of exophthalmic goitre:

I. ℞.—Cannabin . . . . . grs. iij.
Lactose . . . . . q. s.—M.

Make into five pills; to be taken in twenty-four hours.

II. ℞.—Cannabin . . . . grs. iij.
Distilled water . . . ℥iij.
Syrup of orange flowers . . ℥j.—M.

Sig.—To be taken in twenty-four hours, in teaspoonful doses.

Decomposition of Chloroform by Gaslight. — Much has been said upon this subject of late, and the opinion of the danger of the administration of chloroform by gaslight has been almost universally substantiated. PROF. BOSSHARD has added additional confirmation to the conclusion already reached by experience, by his careful chemical analysis of the changes undergone by chloroform when allowed to evaporate in the proximity of a gaslight. The following substances are formed:

1. Carbonic oxydichloride (phosgene gas).
2. Muriatic acid gas.
3. Free chlorine.

The harmful action of the two last-named gases is already well known, but the toxicity of phosgene gas is still uncertain.

DR. STOBWASSER, in Berlin, has recently conducted a series of toxicological experiments with rabbits and guinea-pigs. He put them into a glass case provided with two doors for ventilation, and introduced a flat dish containing chloroform, and near it a gas-jet.

When only one burner was used, and a small flame, the animal quickly showed symptoms of severe dyspnœa and labored respiration. When two or three burners were used these symptoms were greatly intensified, and the animals invariably died soon after the completion of the experiment, and frequently during its course.

The conclusions deduced by Stobwasser from these experiments are obvious. The danger of administration of chloroform by gaslight is, therefore, unquestionable. True, this may be in a measure mitigated if thorough and ample ventilation is secured, but still Stobwasser looks forward to the introduction of the electric light for surgical operations by night.

The Causes of Recurrence of Mammary Cancer.—The advances of modern surgery in the field of operations for carcinoma has, of late, been most extensive. The thoroughness with which such operations are now conducted, when not only the entire growth, but also the neighboring structures and lymphatics are also removed, differs greatly from the old method of operating. Foremost among the recent workers in this field have been Thiersch and Volkmann. All the same, in spite of many brilliant operators and numerous learned essayists, the results of extirpation of the mamma for carcinoma are most unsatisfactory. DR. HEIDENHEIM, of Berlin, has recently been investigating the causes of the almost inevitable recurrence of mammary carcinoma. His researches, as quoted in the *Fortschritte der Medicin* of August 15th, have been most fruitful.

In eighteen cases of cancer he subjected the extirpated gland to a most careful microscopical examination, and in twelve cases found cancerous elements at the base of the growth and prognosticated a recurrence of the disease. His prognosis was confirmed. In the remaining six cases the base of the extirpated gland was found to be healthy, and here the favorable prognosis advanced by Heidenheim has also been substantiated.

Heidenheim formulates the results of his investigations in the following conclusions:

1. The pectoral fascia is very thin and its limits very uncertain, so that it is impossible to divide it from the muscle without leaving portions of the tissue adherent. This is especially the case in corpulent females.

2. In thin women the mammary gland is distinct, but in stout women small portions of the same are adherent to the neighboring fascia and muscle, and therefore it is very probable that, after amputation, small portions of the gland will remain adherent.

3. It may be almost positively concluded that if a mammary gland contains even a small cancerous nodule it is diseased throughout its entire extent. The epithelial cells of the acini and the connective tissue become extensively infected. The lymphatics of the mamma carry these epithelial cells to some distance. Possibly one cause of recurrence of the disease is due to the acini which remain after the extirpation.

4. In conjunction with bloodvessels, lymphatic ducts stretch from the glands deeply into the retro-mammary fat. In two-thirds of the cases examined cancerous metastasiæ were found in these lymphatic ducts. Through this channel the disease can go forward until it reaches the fascia.

5. The pectoralis major is usually healthy when the tumor is in no way attached to it. It is, however, diseased when cancerous nodules are found adherent to its fascia, and also when the body of the tumor is attached to it. Probably the disease is introduced into the muscle through the lymphatic ducts.

6. Possibly, also, the contraction of the muscle, through movement, as well as the lymphatic stream, aid in carrying the infection to the surrounding tissues. A muscle infected with cancer seems to be diseased in its entire extent.

Guided by the above conclusions, Heidenheim advocates that, in cases of mammary carcinoma where the tumor is perfectly free and movable, the entire growth with surrounding tissues, and also the superficial portion of the muscle, should be removed; when, however, the growth is adherent to the pectoralis major, total extirpation of that muscle is necessary.

These important and well-founded suggestions have been most attentively considered by German surgeons. It is, indeed, to be wished for that the result of this operation should become more certain and more hopeful.

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ALBUMINURIA WITH REFERENCE TO PROGNOSIS AND LIFE INSURANCE.

A VERY interesting discussion on this subject, rendered especially important by reason of the eminence of those who participated in it, took place at the recent meeting of the British Medical Association, at Leeds. It followed the reading of an introductory paper by DR. F. W. PAVY, and, with the exception of Drs. Grainger Stewart, Roberts, and Dickinson, few English physicians whose names are associated with renal disease failed to take part. Much of interest was said collateral to that of the title, but we shall confine ourselves strictly to matter pertaining to it.

Dr. Pavy divided the cases of albuminuria intended to be covered by the discussion into three groups: (1) Cases in which traces only of albumin are present—meaning by traces quantities which require careful testing for their recognition, but by tests free from fallacy; (2) cases in which a notable amount of albumin exists and is always present; (3) cases in which a notable amount of albumin is found at one period of the twenty-four hours, and none at another—or, in other words, cases of cyclic character.

In those of the first group, *with everything else bearing upon the point pronounced to be satisfactory after a full and careful investigation of the case*, Dr. Pavy would not consider the prospects of life insurance invalidated. The granular kidney being the form of renal disease especially associated with small amounts of albumin, conditions belonging to this affection are to be particularly sought for, viz., increased quantity of urine, low specific gravity, and morbid changes in the cardio-vascular system.

Of the second group it would only be in a case that had been under distinct observation for a considerable time without anything wrong being developed, that he would venture to look favorably upon the prospects, and even then he should consider that a decidedly more than usual risk existed.

Of the third group—the cyclic albuminuria—the distinguishing feature is, that without evidence from other sources of the existence or *pre*-existence of renal disease, in the ordinary course of daily life albumin is at one period of the day present and at another absent, and that this recurs day after day in exactly the same order. Thus, on rising in the morning, there is no albumin; in an hour or two it appears, increasing for a time, and then as the day advances declines, and generally entirely disappears before bedtime. This repeats itself the next day, and so on. With respect to these cases, Dr. Pavy feels warranted in saying that if, on a sufficiently full and careful inquiry, a case is found to fall in this category, the risk may be favorably regarded. He thinks it not unreasonable, however, that an additional premium should be asked to meet the possible contingencies which may arise.

Those who are familiar with the writings of DR. GEORGE JOHNSON given out at various times on the subject of albuminuria, will be prepared to hear that he does not agree with Dr. Pavy. He says: "No medical officer, I suppose, would advise that a proposed assurer with a decided trace of albumin in the urine should be accepted at the ordinary rate of premium. Such a condition, even in a careful and prudent man, must involve some extra risk, and no office can insure care and prudence. Whether an albuminuric should be accepted on any terms can be determined only by a careful inquiry into the particular history of each case."

Dr. Johnson is very emphatic in insisting that all urines containing albumins, however small in amount and even occasionally intermittent, are pathological, which we do not think any one will dispute. He objects even to the term "functional" albuminuria, and says that in almost every instance these cases of albuminuria may, by a careful inquiry, be traced back to some recognized exciting cause, in which we are less inclined to agree with him.

DR. R. MAGUIRE thinks that when albumin is present at the time of the examination for insurance, the life should be rejected, or, if accepted at all,

should be accepted at an increased premium. DR. P. H. PYE-SMITH also regards "functional" albuminuria as really "pathological for the time being," and would defer the applications for assurance rather than attempt to determine what is often an insoluble question. DR. W. T. GAIRDNER could not find a more just or accurate expression for his opinion than to say that serum albumin, when present in the urine even casually, must be regarded as a danger signal. As for the amount of danger implied in the fact in particular cases, he was neither pessimistic nor optimistic. He, in a general way, accepted Dr. Pavy's conclusions, both as to the significance of the fact and the other circumstances to be taken into account in forming a prognosis. He thought, however, that even in a case otherwise acceptable, judgment must be postponed for a period varying, according to circumstances, from weeks to months.

DR. RABAGLIATI made a good point with regard to the specific gravity of the urine, saying that above 1020 it suggested lithæmic nephritis; if below 1010 it suggested further advance of the disease. On the whole, he could not support those who were disposed to take a favorable view of the cases in which even a trace of albumin was present.

DR. C. R. DRYSDALE thought that in temporary albuminuria delay is advisable before coming to a definite conclusion, while DR. R. SAUNDBY is a firm believer in the innocent character of albuminuria in certain cases, and would, therefore, gladly see some change in the present practice of the majority of insurance companies if it could be brought about with due regard to their interests.

DR. W. J. TYSON thought that the popular knowledge concerning the presence of albumin is causing a needless amount of anxiety, and made the happy suggestion that the Collective Investigation Committee take up the subject of prognosis in these cases of permanent, but apparently harmless, albuminuria.

DR. J. E. EDDISON, of Leeds, thought that every case of albuminuria referred for report as to life insurance should either be refused or deferred six months or a year, and if the albumin persisted, should be rejected, no matter how healthy the applicant appeared in other respects.

We regard the contribution of DR. CRANSTOUN CHARLES as one of the most valuable the discussion received in the way of furnishing tangible data whence conclusions dare be drawn. He reported the results of some observations upon apparently healthy students and others, similar to those made by Grainger Stewart and published in his new book on albuminuria a year ago. Out of 250 of the former, 34, or 13.4 per cent., presented albumin in the mid-day urine, and of 72 pupils in a training-college albumin was present in the after-dinner urine of 24, or 33⅓ per cent., while in half of these peptones were also present. Out of 100 candidates from the country there was albumin in the morning urine of 30.

It will be seen that there was not as much unanimity of opinion upon this important subject as could be desired. Dr. Pavy and Dr. Saundby alone are clearly of the opinion that albuminuria should not be an unconditional obstacle to life insurance. In this they are partially sustained by Drs. Gairdner and Drysdale, while Drs. Johnson, Maguire, Pye-Smith, Rabagliati, and Eddison would evidently consider it a hindrance scarcely, if at all, surmountable. Much discussion about a term is scarcely profitable. As intimated, we hardly think that any one will claim that an albuminuria is to be regarded as "physiological," or, strictly speaking, even as "functional." But it does not follow from this that a small amount may not be compatible with sound health, as such observations as those of Cranstoun Charles, given above, and of Grainger Stewart, conclusively show. We cannot see that an impartial examination of such statistics as these permits any other conclusion. Of course, such cases must not be confounded with cases of albuminuria due to structural change in the kidney. Hence more than ordinarily close investigation is often needed to distinguish them, but such distinction being made, we cannot see a sufficient reason for altogether rejecting such applications, provided, as Dr. Pavy said, everything else bearing upon the point be pronounced satisfactory after a full and careful investigation of the case.

As intimated, a number of other important facts were brought out in this discussion. Thus Dr. Pavy makes, in passing, the statement that whereas in structural renal disease there is usually present only serum albumin, thrown down by the mineral but not by organic acids, in cyclic albuminuria his experience leads him to believe that it is the rule rather than the exception, that the addition of an organic acid is followed by a precipitate, showing the presence here of two kinds of albumin, one like alkali-

albumin and mucin, precipitated by organic acids, and the other serum albumin.

Dr. Rabagliati had also noted, that out of 3246 deaths in the Scottish Widows' Fund, 255, or 7.8 per cent., were due to "urinary" diseases. Of these, rather more than one-half, or 4.3, were ascribed to "disease of kidneys and nephritis." He had compared this with the deaths among adult males in a mixed population like that of Bradford. There, among 3317 deaths of males above fifteen years of age, only 3.4 per cent. were returned as due to urinary diseases. Without laying too much stress on this, he thought it showed a *prima facie* case for the view that the well-to-do, who applied for life insurance, suffered more from urinary diseases than the ordinary population—mainly because well-to-do people ate and drank too much.

THE Canadian Medical Association held, on the 12th and 13th of last month, a most successful annual meeting at Banff. The meeting was very largely attended, and is said to have been most enjoyable in every way. The United States was represented by Drs. Currie and Whittaker, of Cincinnati; Dr. Baker, of Philadelphia; Drs. Gibney and Bulkley, of New York, and others. Toronto was decided upon as the next place of meeting.

THE First International Congress of Physiologists was opened at Basle, Switzerland, on the 10th inst., and sat for three days.

THE chair of gynecology and obstetrics in the University of Vienna, rendered vacant by Breisky's death, will be filled by PROFESSOR CHROBAK, of Vienna.

The chair of medical pathology and therapeutics at Prague has been filled by PROFESSOR VON JAKSCH, of Graz. Both appointments seem to give general satisfaction.

WE note that PROFESSOR WEIGERT, who has edited the *Fortschritte der Medicin* ever since the death of Dr. Carl Friedländer, its founder, has resigned its editorship.

IT is stated that Mr. Reginald Harrison, of Liverpool, a well-known authority on diseases of the urinary organs, is about to take up his residence in London.

PARIS has indeed had her fill of International Congresses during the past two months, and this year may justly be remembered as "the year of congresses" in that city. Yet all have not been chronicled, for we read in the *Münchener med. Wochenschr.* that even an Anti-vaccination, or, more broadly speaking, an International Anti-inoculation Congress, was held last month. The use of a room in the City Hall of Paris was denied the Congress.

AN institute has been founded in St. Petersburg for the experimental study of infectious diseases and for prophylactic inoculations. The institute is to be under the charge of Professor B. Anrep.

Two cities that have been almost revolutionized in their sanitary conditions are Munich and Memphis. In the former typhoid fever was one of the high factors of the bills of mortality before Pettenkofer instituted his measures of reform, whereas now the fever is so rare that the medical teachers are often at a loss for a case to show to their classes. From being one of the most unhealthful of European cities, Munich has become one of the most salubrious; it is more prosperous, from an influx of strangers who are settling there, and from the increased attendance of students at the University. Memphis is still engaged upon its sanitary reforms, being busy with the introduction of an artesian water supply of admirable quality. Memphis was formerly a notoriously unhealthful town, and suffered greatly from epidemic disease, whereas to-day she has as low a mortality as any city in the country having the same population. In the words of Dr. Conn, "the change that has come over the city in less than ten years seems more like the tales of romance than the mere realization of a scientific and economic truth."

IN Japan there are thirty-one schools of medicine, one of dentistry, and two of veterinary surgery. The university of Tokyo (the Imperial University) has over 1200 students, and an average of 100 medical students graduate yearly. In Tokyo alone there are numerous active medical societies and over twenty hospitals.

THE Second Congress for Tuberculosis will be held in Paris during the latter part of July, 1890. Professor Villemin will act as president. The following questions are to be discussed: 1. The identity of human and bovine tuberculosis, also that of other animals. 2. The bacteriological and morbid associations of tuberculosis. 3. The isolation of

tuberculous subjects. 4. The agents capable of destroying Koch's tubercle bacillus, with a view to the prophylaxis and therapeusis of the disease in man.

WE learn from the *Gazetta degli Ospitali* that the Seventh International Pharmaceutical Congress will be held in Milan during the first part of September, 1890. A committee of arrangements has already been appointed.

THE second Italian Congress for Internal Medicine will be held in Rome from the 15th to the 18th of October of this year. The subjects to be discussed will include malarial infection, the pathology and therapy of nephritis, and gout.

REVIEWS.

A TREATISE ON SURGERY, ITS PRINCIPLES AND PRACTICE. By T. HOLMES, M. A. Cantab., Consulting Surgeon to St. George's Hospital, Member Associé de la Soc. de Chir. de Paris. With 428 illustrations. Fifth edition, edited by T. PICKERING PICK, Surgeon to, and Lecturer on Surgery at St. George's Hospital; Senior Surgeon Victoria Hospital for Children; Member of the Court of Examiners Royal College of Surgeons, England. Pp. 1008. Philadelphia: Lea Brothers & Co., 1889.

HOLMES'S Surgery has always been a popular book, and now that a fifth edition has been issued, it will be safe to predict a favorable reception for it. A large number of alterations and additions have been rendered necessary by the steady growth of surgical science, and in the main these additions are judicious and in accordance with the doctrines of the present day.

The chapter on "Diseases of the Eye" has been omitted, both in order to make room for the necessary enlargement of the work, and because it is impossible to do justice to such an important subject in a limited article. Our author is a strong advocate of "antiseptic surgery," but we cannot think that all of his views in regard to this matter are either safe or correct—for instance, it is recommended to wash out the peritoneal cavity with a sublimate solution, "which should not be used of a greater strength than 1 in 4000." This is certainly a dangerous strength to use for this purpose. The spray is only recommended as a purifier of the atmosphere prior to operation, but most surgeons will fail to believe that the "bacteria which may be floating in the air" are destroyed thereby. It is recommended to redress the wound at the end of twenty-four hours, and to allow no antiseptic dressing to remain longer than a week without removal.

Most of the chapters will be found to be quite exhaustive for a text-book, and whilst the tendency of the author is toward conservatism, his conservatism is well tempered with judicious boldness. The only criticism which can be made unfavorable to the work, is that it is not quite up to date, and this may have been unavoidable. The experimental work of Senn in regard to intestinal obstruction, etc.; his bone-plate suture for the rapid restoration of the continuity of the intestinal canal; his rectal insufflation of hydrogen gas for the detection of perforations in the bowels, mark an era in intestinal surgery, but no notice of them is found in this book. Other defects might be mentioned, but they are far overbalanced by the good points of the work. The chapter on "Aneurism and Diseases of the Arteries" is especially satisfactory, occupying fifty pages of the text. In our opinion the fifth edition of Holmes's Surgery is a good book, and deserves a large circulation.

LECTURES ON BRIGHT'S DISEASE. By ROBERT SAUNDBY, M.D. Edinburgh, F.R.C.P. Lond., Emeritus Senior President of the Royal Medical Society, etc. 12mo., pp. vii., 290. With fifty illustrations. New York: E. B. Treat, 1889.

WE wish we could say as much for the other features of the make-up of this American reprint of Dr. Saundby's excellent lectures as we can for the type, which is as clear and readable as the author's style. This is worthy of mention, because publishers do not always show proper consideration for the student's overworked eyes, and appreciation may be an encouragement to persist, to those who do.

Much of the material of these lectures has been previously published, but the preface states that "every chapter has been rewritten, every point has been thought out again." The work is divided into three sections, entitled respectively "General Pathology," "Clinical Examination of the Urine," and "Bright's Disease," these being appropriately subdivided. The present state of knowledge upon all topics treated is concisely set forth, a fair summary of the most prominent views upon debated questions being followed by a lucid exposition of the author's own opinion, and the evidence upon which it is based.

Believing that albuminuria may be without pathological significance, he thinks that *per se* it should not be a bar to life insurance. He proposes an etiological classification of Bright's disease into (1) febrile nephritis, (2) toxæmic nephritis (3) obstructive nephritis. The terms are self-explanatory. All the usual pathological divisions may be found under each of these classes. The first division, however, includes most cases of acute parenchymatous nephritis and of chronic fatty kidney, while the second is specially associated with the small red granular kidney, including chronic lithæmic cases, acute nephritis of gout, acute or chronic cases due to poisoning by vegetable, animal (extraneous or autogenous), or mineral poisons, and certain cases of primary acute nephritis attributed to chill, but in which there is probably an existing dyscrasia. Lardaceous degeneration is not made a special class, because it can be called "Bright's disease" only when associated with chronic nephritis—*i. e.*, the chronic nephritis of chronic pyrexial disease. Albuminuria and Bright's disease are not synonymous; so that even the occurrence of this symptom in general lardaceous degeneration, including the kidneys, does not bring the renal affection under the latter heading. "The Complications of Chronic Bright's Disease" is made a separate chapter. The questions of diagnosis, prognosis, and treatment are treated under each of the different divisions. We cite with approval

the author's opinion that an exclusive milk diet in chronic gouty nephritis is not only unnecessary, but positively harmful. We have frequently met with cases in which the ill results of an attempt to maintain this diet have prejudiced the patient against necessary dietetic restrictions. Dr. Saundby's discussion of therapeutic points is too condensed to be satisfactory, but the advice given is, in the main, judicious, and is evidently based upon an extended experience.

THE URINE, THE COMMON POISONS, AND THE MILK. MEMORANDA, CHEMICAL AND MICROSCOPICAL, FOR LABORATORY USE. By J. W. HOLLAND, M.D., Professor of Medical Chemistry and Toxicology, Jefferson Medical College of Philadelphia. Illustrated. Third edition, revised and much enlarged. 12mo., pp. 84. Philadelphia: P. Blakiston, Son & Co., 1889.

THAT this little book admirably fulfils its purpose as a syllabus for the laboratory, is evidenced by the succession of new editions called for. A highly useful feature in its make-up is the interleaving with blank pages for memoranda, calculations, or more extended notes by the student.

DIPHTHERIA: ITS NATURE AND TREATMENT. By C. E. BILLINGTON, M.D. AND INTUBATION IN CROUP AND OTHER ACUTE AND CHRONIC FORMS OF STENOSIS OF THE LARYNX. By JOSEPH O'DWYER, M.D. 8vo., pp. 326. New York: Wm. Wood & Co., 1889.

TO reverse the order of the publishers and take "the best, first," the chapter upon intubation contributed by the author of the operation—for such he is entitled to be called, despite Bouchut's unsuccessful attempts of earlier date—is well worthy of careful study. It is terse in statement, clear in style, and eminently practical in tendency. The operation, its indications, its technique, its complications and its accidents, are fully explained; and the after-treatment is equally well handled.

Dr. Billington's treatise upon diphtheria is not sufficiently full or critical for those who are not acquainted with the literature of the subject; and for those who are, a large portion of it is unnecessary. It has, nevertheless, a positive value as the record of the experience of a careful observer who has enjoyed unusual opportunities to become familiar with the clinical aspects of his subject. The chapters upon symptomatology, diagnosis, prognosis, and treatment are therefore those which give the work its *raison d'être*.

Etiology is perhaps the topic upon which the author lays greatest stress, and he is a staunch upholder of the doctrine of the primarily local origin of the affection. A microbe, not yet positively identified, becoming implanted upon mucous membrane of which the epithelium is inflamed or abraded, gives rise to a chemical poison, which by direct action upon tissues and vessels causes the local diphtheritic process; while absorption of this ptomaine and perhaps of other septic products, gives rise secondarily to the constitutional manifestations.

Treatment must first endeavor to check or combat the local disease; second, to prevent systemic infection; third, to avert the evil consequences of such infection. Local disinfection by means of a spray of carbolic acid and lime water, topical applications of mercuric chloride, and nasal irrigations of warm salt water; together with the internal use of potassium chlorate, tincture of ferric chloride, and mercuric chloride; all in accordance with certain formulæ and methods to which great importance is attached; are, in addition to the obvious points of hygiene and nutrition, the measures chiefly relied upon. Alcohol is freely used in conditions of adynamia, but its indiscriminate use is deprecated.

There is an extended discussion of the value of agents other than those mentioned, which have been vaunted by various observers; and the subject of tracheotomy in laryngeal diphtheria is treated with reasonable fulness; though the important questions of after-treatment are somewhat neglected.

SOCIETY PROCEEDINGS.

GYNECOLOGICAL SOCIETY OF CHICAGO.

Stated Meeting, March 15, 1889.

THE PRESIDENT, CHARLES T. PARKES, M.D., IN THE CHAIR.

(Concluded from page 303)

DR. WILLIAM E. CLARKE spoke of

BLEEDING IN PUERPERAL ECLAMPSIA.

From the earliest dawn of medical science to within recent memory, bloodletting was almost universally regarded and employed as one of the most valuable of remedies. In discussing the curative treatment of puerperal eclampsia, especially in reference to venesection, it may be well to inquire how much the present popular disfavor of the remedy and its disuse by the profession are due to popular clamor, to the caprices of fashion, to the vagaries of pseudo-practitioners, or how much to the advancement of pathological knowledge and the deductions of sound scientific research.

Popular clamor and the blind zeal of the pseudo-scientist and misguided reformer have had very much influence in the matter. But blind and unreasonable prejudice against bleeding has not been confined to non-professional or to illegitimate practitioners.

Allison, in 1856, assumed that the type of diseases had changed from a higher to a lower type, and that while bleeding and other antiphlogistic remedies twenty years before were useful, at that period they were harmful. Dr. Bennett contended that there had been no such changes in the type of diseases; that bleeding and other antiphlogistic remedies were contraindicated, in all internal inflammations, by principles of sound pathology. To the writings of these men, together with Dr. Flint of our own country, are probably due, more than to any other respectable medical writers, the changed views among the regular profession. Still, Dr. Bennett, in the discussion with Dr. Watson on this question, agrees with the latter that we should so bleed as to secure its advantages and avoid its disadvantages.

The speaker, during a stay in Washington, made a very thorough examination of the literature of this subject in the library of the Surgeon-General's Office. He found that the consensus of a very large majority of the eminent members of the profession who wrote on the subject, during this war on bloodletting, is in favor of it, particularly in selected cases of puerperal eclampsia.

He further believes, from his clinical observation in a practice of more than forty years, that in cases of puerperal eclampsia where there is turgescence of the vascular system, or in cases of uræmia, bleeding is called for to relieve vascular tension and to remove damaged blood from the system.

In 1855 he reported to the Chicago Medical Society a case of eclampsia that was promptly relieved by bleeding, after chloroform had been used, only apparently to increase the plethoric condition of the patient. The writers of that day usually described puerperal eclampsia under three distinct varieties: hysteric, epileptic, and apoplectic. The position taken in the report was that chloroform was the only proper remedy in the first variety, and bleeding in the two others.

To the principles recorded in that paper he still adheres, and in some ten cases he had used the lancet with the happiest results. In one case no blood was taken, as it was regarded as hysterical, but the convalescence was far more tedious than in any of the others. In no case coming under his observation has he seen any of the evils attributed to the abstraction of blood, but he believes that he has seen suffering and death which might have been averted by the timely and judicious use of this much-abused but potent remedy, if the attending physician had not been prejudiced, or had had the moral courage to resort to its use. The attention the subject is receiving from the profession is a hopeful indication that venesection is soon to resume its place as a valuable therapeutic measure.

DR. EDWARD WARREN SAWYER, in opening the discussion, said that concerning the subject of eclampsia he had but two points to speak of, and both concern its etiology. He recalled very distinctly a most interesting conversation upon this subject that he had with the late Joseph Freer, who had experimented extensively with reference to ascertaining the condition of the urine in eclampsia, and the effect of that urine upon the lower animals when injected into the veins. His conclusions, or chief conclusion, was that eclampsia was not due to uræmia, as much as popularly thought, but that it was really due to anæmia of the brain; this condition being effected by the œdema of the brain of the eclamptic subject.

The second point which the speaker's practice had demonstrated to him effectually is that the danger or the fatal results of eclampsia are not proportionate at all to the amount of anasarca presented by the patient. In fact, of the four cases of eclampsia of which he had a very distinct recollection, the two fatal cases scarcely presented any anasarca, while the cases that recovered presented an anasarca to a degree that was never before seen by him. In both of these cases the degree of anasarca was such in the genitals that the patient could not possibly approach her knees; yet both cases recovered. In one, vision was nearly lost for a number of weeks; in the other, hearing was greatly impaired. In the fatal cases there was less anasarca than is usual in the primipara, and it was limited to the feet. In one of the fatal cases the urine had been examined during pregnancy, and no albumin found; but within five minutes of the birth of the child she had eclampsia, followed by death.

DR. W. H. BYFORD said that these papers had thrown him into a kind of reverie, causing him to look back to old times and to follow the subject down from the years of which Dr. Clark spoke to the present, recalling what the pathology of the disease was then and what the therapeutics were as compared with the present. At that time, doctors used to consider the pathology of eclampsia as apoplectic in character. They thought there was either a very great congestion of the brain unattended by effusion, or that there was great congestion of the brain attended by effusion of blood or serum, and in the dissections of cases at that time it was a very frequent thing to find clots of blood in the substance of the brain. There were also symptoms indicating œdema of the lungs. Those lesions seem to have been the anatomical pathology of the disease at that time. We had no idea, as at present, of the *etiological pathology* of eclampsia. We supposed that the pressure of the uterus upon the abdominal vessels and those of the chest through the diaphragm, caused hyperæmia of the brain, because of the partial exclusion of the blood from those vessels, both venous and arterial. Pressure upon the abdominal aorta prevented the arterial blood from being thrown so plentifully into the inferior extremities, and diverted it to the brain. We believed that this resulted from the pregnancy, and that the full effect of the cerebral hyperæmia thus caused depended upon some constitutional condition with which we were not acquainted. That kind of reasoning upon the pathology of eclampsia led us to a practice which is very different from the practice of the present time. Tracing the disease to a congestion of the brain, or to an effusion of blood in the brain, we believed the best preventive measure—the best curative measure—was evacuants—something to lessen the quantity of blood in the system and at the same time prevent the large quantity of blood being thrown into the brain through the circulation, giving Nature time to correct herself by delivery, etc.

To sum up his experience in that kind of treatment, he said that he had pursued it until he came to Chicago, twenty years from the commencement of his professional career, and he did not remember that he had seen a patient die of eclampsia until he came here. The first case he saw was in consultation. The patient had eclampsia and was only about six months pregnant. They discussed the subject of treatment, and he was astonished, as she was a strong woman, that nothing was said about bleeding; but venesection had been dead several years in this part of the country, and he could not induce the other consultants to think that it was a proper remedy. That was the first patient he ever saw treated without venesection, and the first patient he saw die. He agreed perfectly with the sentiments expressed in the paper on the etiology of the disease. He thought it perfectly rational to trace it to a kidney origin, as our pathological observations have proven that there is poison of some kind produced by retention of some of the constituents of the urine. Something occurs in the kidneys that prevents their depurating influence, and there accumulates in the blood a considerable quantity of excrementitious matter that ought to be eliminated, which seriously affects the nervous centres. He did not at all subscribe to the idea that cerebral anæmia is necessary to these convulsions in the beginning; he was sure it is not present as the case advances. These cases begin with epileptic symptoms, and they generally end with apoplectic symptoms. He believed in the beginning that there is not much vascular excitement in the brain, but

that the terrible convulsions and the great cramps, especially in the chest, produce such a determination of blood to the brain as to produce organic effects in it.

As to his present ideas with reference to the treatment of eclampsia, he agreed with Dr. Earle in the majority of his conclusions. But in the general way of treating these patients, leaving out the considerations of delivery, he believed it was better for us to begin, especially in patients of strong, plethoric habit, by copious venesection. In the old days when venesection was done, we did not count the ounces of blood as a reason for bleeding no more, but we bled to produce an effect, and sometimes we bled three or four pints at a time. And he thought now if we could have a patient early, and the pregnancy has not terminated, the best thing to do is to bleed to reduce the quantity of blood, and consequently reduce the force of the circulation and acrid character of the blood by the rapid absorption of lymph which follows. After this is done we should give an active cathartic to work off any accumulation in the intestinal canal and produce revulsion. During the whole time after bleeding we should keep the patient constantly under the influence of chloral. Chloroform bears no comparison, in its effects upon eclampsia, with chloral, and one reason is that we do not know how much chloroform the patient is inhaling. Certainly there is no sense in holding a sponge of chloroform to a woman when she is in convulsions, for respiration is suspended until the convulsion ceases; it is impossible to get it into her system while the air is thrown out of the lungs and the chest closed by clonic spasms, but we can give chloral by the stomach or by the rectum, and keep up its influence to a recognizable degree. These remedies must be supplemented by the treatment which Dr. Earle so intelligently presented. He thought very favorably of pilocarpine; it is a most excellent addition because it serves to promote the secretions to such a great degree.

DR. J. S. KNOX said that his introduction in medicine was under the direction of an old and skilful country doctor, who was decidedly in favor of venesection. He used to bleed in labor for irritable os, for rigid perineum, for the prodromal symptoms of eclampsia, and he always bled for eclampsia. He never knew him to lose a case, and he told him he never had lost one when he bled early enough. He was impressed, therefore, with the idea that venesection was the treatment for eclampsia. He had always followed it, and in ten cases that had come under his observation, seven were bled and recovered, three were not bled and died. His treatment has been to bleed, as Dr. Byford expressed it, copiously, drawing from fifteen to twenty ounces of blood from a large orifice, and he never yet had seen a woman so anæmic that he hesitated to employ this method. After the bleeding, he gives half a grain of morphine hypodermatically, and medicines to keep the bowels and kidneys acting freely.

DR. F. HENROTIN said that in his own mind he divided these cases into two varieties. On the one side are the cases that give rise to symptoms long before delivery; cases that are accompanied by a greal deal of œdema, both of the genitals and of the limbs; cases that draw attention to the fact that albuminuria is probably present, which is usually found to be the case. And it always seemed to him that those cases having such symptoms were best treated by venesection, catharsis, and pilocarpine. On the other hand, there are a few extremely severe cases occurring in patients who had shown no œdema, who usually had shown no symptoms whatever before delivery, but were supposed to be perfectly healthy, and in whom the convulsions occurred either at the time of labor or several hours afterward. In two of these cases he had seen venesection tried without any effect whatever, while, in the cases that gave rise to œdema, venesection, which has always been followed almost as a routine practice by him, has always seemed to be of a great deal of benefit. Those patients that were affected very late in pregnancy or after delivery, that did not give any symptoms whatever, where albuminuria was not present at all, seem not to have been affected in any way whatever by venesection, but seem to have been helped by morphine and narcotics; while those that resembled more particularly cases of the uræmia that we get after scarlatina, those cases of supposed large, white kidney in which albuminuria is a prominent symptom, those cases seem to be affected favorably by venesection, and in such cases coming under his observation, with one exception, all recovered. In regard to drugs in this disease, he believed from personal experience that the giving of pilocarpine hypodermatically, while the patient is unconscious, is capable of actually drowning the patient by the excessive flow of saliva and increased pulmonary secretion, so that he would advise caution in its administration when the patient is unconscious.

DR. W. W. JAGGARD said that it is possible that in certain cases the nephritis of pregnancy may be an example of infection. But the sporadic occurrence of the disease, the apparent selection of primiparæ, and cases of multiple pregnancy, tend to show that the operation of this factor is not general. Staude calls attention to the predisposition to the disease observed in case of pelvic contraction and where the fœtal head is of uncommon size. Pressure on the pelvic bloodvessels causes an increase in the general blood-pressure that ultimately reacts upon the kidneys. Eclampsia appears among the rich and poor alike. Its victims are oftenest young, healthy, blooming women in whom it is reasonable to suppose the physiological resistance of the tissues is not notably lessened.

Dr. Nelson and Dr. Merriman have touched upon an important item in prognosis. What is the probability as to recurrence of eclampsia in subsequent pregnancies? A guarded answer must be returned. In general, eclampsia in a first pregnancy seldom means a recurrence of the disease in succeeding gestations. When all symptoms of nephritis disappear within a short period after delivery, the probability of immunity becomes almost a certainty, so that eclampsia in a first pregnancy, *per se*, is not an indication for the prevention of conception nor for the induction of abortion. If, however, symptoms of Bright's disease, no matter however latent, persist, the patient should be warned against conception. In case of conception and the development of albuminuria early in pregnancy, he was of the opinion that the induction of abortion ought to be seriously considered.

The value of the hot-water bath is greatest in the prevention and least in the cure of eclampsia. Used as described by Dr. Earle—the Vienna plan—it is by far the most efficacious procedure that we possess in the prophylaxis of the disease.

As to the treatment of eclampsia during pregnancy, the weight of evidence and opinion is decidedly in favor of an expectant plan of treatment, unless abortion or premature labor is imminent. Wait until the seizures are well over and until convalescence is established before interrupting pregnancy. If, however, abortion or premature labor is imminent, the indication is to aid in the evacuation of the uterus.

In eclampsia during labor, three indications are clear:

1st. After the insertion of a gag and the protection of the woman's body by pillows and the like, the indication is to control the convulsions by profound narcosis. The choice of remedies is not so important as that the narcosis shall be deep and continued. Chloroform is by far the best agent to control the seizures, while the narcosis can best be maintained by large doses of chloral and the bromides exhibited *per rectum*. Winckel,[1] who relies exclusively upon chloroform inhalations and chloral *per rectum*, has had only seven deaths in ninety-two cases. As at present informed, this result is better than that obtained by any other plan of treatment on record.

2d. The second indication is to evacuate the uterus as rapidly as may be consistent with the safety of the mother and child. Experience teaches that the convulsions cease when labor terminates in about one-third of the cases, in one-third they grow less frequent and severe; only in the remaining one-third do they continue without change. Early in the first stage of labor, before effacement of the cervix and dilatation of the os, puncture of the membranes is commonly the best means to accelerate labor. The escape of the liquor amnii is not infrequently followed by an abatement of the convulsions. Later in the first stage, after effacement of the cervix, digital dilatation of the os externum is often indicated. It is seldom necessary to incise the os externum. Delivery may be completed by the forceps or version and extraction, according to the conditions of the concrete case.

3d. The third indication is to eliminate the retained excrementitious products of the urine by diaphoresis, purgation, and diuresis. The hot pack is probably the best means. He thought Dr. Earle would encounter some difficulty when he attempted to put an eclamptic in the hot-water bath, besides running the risk of drowning his patient. The vapor bath, by means of the alcohol lamp, is efficient and easily exhibited. Pilocarpine must be used with extraordinary caution, only in the beginning of the disease, when the coma is light, the pulse full, and the respiration free. Deep coma, weak heart, and beginning œdema of the lungs are absolute contra-indications. The evidence upon this point, brought forward by Fordyce Barker, Kleinwächter, Sänger, Welponer, Schramm, Klotz, Carl Braun, Winckel, Schröder, and others is decisive. The unqualified praise this remedy has received this evening must be taken *cum grano salis*. Dr. Henrotin is right in saying there is grave danger of drowning the woman in her own secretions.

Finally, there comes the question of bleeding. Every speaker has commended bleeding in the strongest possible terms. There may have been slight differences of opinion upon other points, but all unite upon the item of venesection. Bleeding is the specific treatment of eclampsia. But no one has given a reason why he bleeds, neither has anyone presented a series of cases that demonstrate the value of phlebotomy. There are at least three good reasons why we should not bleed in uræmic eclampsia.

1. The procedure is without important effect upon the demonstrated cause of the disease. The amount of excrementitious material that can be eliminated by bleeding is comparatively trivial. Blood pressure cannot be depressed for any considerable period of time, unless the patient be dangerously exsanguinated. Hemorrhage into the brain, as a consequence of puerperal convulsions, is an extremely rare finding. The indication for bleeding in eclampsia is not stronger than in the convulsions of Bright's disease in the male and non-pregnant female. None of the Fellows present, he was certain, would bleed in the latter affection.

2. Clinical experience teaches that much better results are now obtained without bleeding than were formerly observed when venesection was commonly practised. In support of this proposition, the verdict of the Vienna (Kucher) school of obstetrics must be cited: "In the Vienna clinics, where the results of treatment are far better than anywhere else," bloodletting has been completely discarded. Winckel's (Munich) statistics have already been mentioned—ninety-two cases, seven deaths. In Schroeder's clinic (Berlin) bleeding is no longer practised, on the ground that better results are obtained since its rejection.

3. The weight of opinion is opposed to venesection. In this connection names are to be valued like coins. C. Braun, Gustav Braun, Josef Spaeth, F. Winckel, Schroeder, have expressed themselves in no equivocal terms as opposed to bloodletting.

If bloodletting in eclampsia is unphilosophical, if it is opposed by clinical experience and the weight of professional opinion, upon what grounds can this practice be tolerated? If we must bleed, let us "bleed the woman into her own veins" by the use of veratrum viride.

The experience of one individual in private practice or in our small lying-in hospitals does not count for much. It can have but slight weight in influencing the conduct of others. Yet, as the personal experience of each member had been the basis of his remarks this evening, the speaker felt like adding his own testimony. Up to the present, in about thirty cases of eclampsia, he had not observed a clear indication for venesection. His observation of the cases of others in which bleeding was allowed has failed to convince him of the value of the procedure. Some of these cases were a little remarkable and cannot be fairly cited in this connection, since at the same time with free bleeding the patient's blood was saturated with chloroform, morphine, chloral, and the bromides. It was a question as to the cause of death, whether it was the Bright's disease, the bleeding, or the artificial toxæmia.

In the treatment of eclampsia one item has been neglected. It is necessary to use all precautions against septic infection that so frequently occurs.

[1] Lehrbuch der Geburtshülfe, 1889, p. 590.

New Hospital in Wilmington.—The corner-stone of the Delaware Hospital, in Wilmington, was laid August 18th of this year. The grounds and buildings, when completed, will cost $20,000. Of this sum $16,000 is already in hand.

CORRESPONDENCE.

PHENACETINE POISONING.

To the Editor of THE MEDICAL NEWS,

SIR: The increasing favor of this new member of the carbolic acid group among general practitioners has induced me to report the following case from poisoning by its use:

Mrs. W., aged thirty, married, no children, slight, anæmic, of a nervous temperament, has been a great sufferer for years from a chronic pelvic trouble, an endometritis, and associated with it neuralgia of a most persistent character in the form of migraine or tic, in frequent paroxysms, occurring two or three times a week. Recently she has been on arsenic and iron and has greatly improved in general health. For her neuralgia she has taken antipyrin and antifebrin, and many other of the approved anti-neuralgic remedies.

Antipyrin and antifebrin she has taken frequently on different occasions in fifteen-grain doses four or five times daily, without any of the characteristic symptoms. She has not, however, received much benefit from their use. Last week I was hastily summoned to prescribe for her in one of her usually severe attacks. In recalling the previous inefficiency of antipyrin, I decided to give her phenacetine. Twelve powders each containing seven and a half grains were given, a powder to be taken every two or three hours. Six hours after leaving my patient I was again urgently requested to see her, and found her in a state of collapse, severe præcordial pains, and great dyspnœa, lividity of the whole surface, nails, lips, and conjunctiva; great restlessness, inability to lie down or stand; was supported in a semi-recumbent position. Temperature at the time of my first visit was 101½° F. Involuntary movement of the bowels occurred once; pulse below normal, slow and soft; cold perspiration; pupils slightly dilated. She remained in this condition for about ten hours, slowly improving under the use of ammonia and alcoholic stimulation. The blueness did not fade for more than three days. Convalescence was very slow, the patient not being able to be around her room for over a week. Three powders of seven and a half grains each were taken during the six hours.

While I regard phenacetine as the most reliable remedy we have for any nerve pain, never requiring it in larger doses than two or three grains, frequently repeated, if necessary, the apparent tolerance of the patient for the drugs antipyrin and antifebrin, was strikingly offset by the use of phenacetine.

W. C. HOLLOPETER, M.D.

1408 N. 13TH ST., PHILADELPHIA.

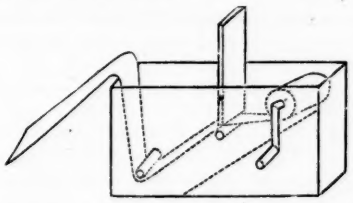
NEW INVENTIONS.

A MACHINE FOR PREPARING PLASTER BANDAGES.

BY G. G. DAVIS, M.D.,

ASSISTANT SURGEON TO THE EPISCOPAL AND ORTHOPÆDIC HOSPITALS, PHILADELPHIA.

HAVING occasion to use plaster bandages frequently, and the machines at hand not working satisfactorily, the following was devised: A box was made, fourteen inches long, five inches wide, and about seven inches high. A winch, made of thick wire and filed flat on its sides and tapering, was placed at one end of the box, and a round peg three-fourths of an inch in diameter placed from side to side in the opposite corner. One edge of the end of the box was rounded off to allow the bandage to glide over it. The bandage is passed over the rounded edge down under the peg, and wound on the winch. A sloping false bottom placed inside causes the plaster to gravitate to one corner. Between the winch and the peg in the corner, a little above a straight line joining the two, is placed another peg. The bandage passes over this peg on its way to the winch. Slots are cut in the sides of the box and a board a quarter of an inch thick placed in it, its lower edge being slightly rounded and resting on the upper surface of the bandage as it passes over the peg. It is kept firmly pressed down on the bandage by a couple of rubber bands (not shown in the illustration) passing from the top of the board to tacks driven in the sides of the box.



The bandage being passed over the edge of the box, it is carried beneath the peg in the corner, between the peg in the middle and the upright board, and fastened around the winch. Fill the box with plaster up to the middle peg. On turning the crank the bandage is carried through the plaster, over the middle peg, the upright board grinding the plaster in and scraping off the surplus, and then wound around the winch. If desired, a wedge-shaped strip of tin with a slot cut in the broad end may be used to carry the bandage beneath the first peg. The bandage being threaded in the slot the tin is passed under the peg, and drawn out, the bandage following.

It is almost useless to attempt to prepare bandages by any machine that does not rub the plaster in the meshes of the stuff, or that winds them while they are nearly or quite vertical; in either case the result is that the plaster drops out and the bandage is useless. The only objection that has yet been made to this machine is that it rolls the bandages so tight that they require rerolling before use. Practically, this does not amount to much, and the machine will be found to work fairly satisfactorily.

NEWS ITEMS.

An Official Investigation of Artificial Foods.—At the recent meeting of the Association for the Advancement of Science, Dr. F. Hoffman, of New York, read a paper on infant foods, in the course of which he stated that the chemists of the United States Agricultural Department were about to begin the work of investigating the different artificial foods and infant foods now on the market.—*The Medical Record*, September 14, 1889.

Leprosy in Hawaii.—It is estimated that there is one leper to every forty of the inhabitants of the Sandwich

Islands. Speaking of leprosy, we notice that a Chinese leper was recently discovered in the Sacramento jail. He had been sent there for refusing to pay a poll-tax.

Poisoning with Corned Beef.—Thirty-one persons at Findlay, Ohio, were poisoned by eating corned beef, and it is feared that some of the cases may terminate fatally.

The Congress on Hypnotism.—The following resolutions were adopted by the International Congress on Hypnotism held in Paris last month:

1. Public exhibitions of hypnotism or magnetism should be forbidden by government.

2. The use of hypnotism as a therapeutic agent should be restricted to practising physicians.

3. It is to be hoped that the method and practice of hypnotism will be included in the medical education of students.

Jelly-fish Sting.—Bathers who have encountered the long tentacles of a medusa will be pleased to know that the "sting," or erythema, may be speedily relieved by the application of water rendered alkaline by common washing soda, in the proportion of an ounce of soda to about two quarts of water. Dr. B. M. Richardson states in the *Asclepiad* for September, that he has personally tested the efficacy of the treatment, and has also used it successfully in several severe cases.

The Dangers of Carbolic Acid.—The following letter of Dr. Th. Billroth, of Vienna, has been published: "I have lately seen four cases, in which fingers which had suffered a most insignificant injury became gangrenous through the uncalled-for application of carbolic acid. Carbolic acid is now much less used in surgery than formerly; we have only gradually become acquainted with its dangers. The acid may not only cause inflammation and gangrene, but also blood poisoning, and so may even prove fatal. It is useful only in the hands of a skilful surgeon, and ought never to be used without his advice. The best lotion for recent injuries is the ordinary lead lotion, which can be bought at any chemist's. The best antidote in carbolic acid poisoning is soap, which should be taken immediately and repeatedly until all symptoms of poisoning have disappeared." —*Lancet*, August 31, 1889.

Female Medical Students in India.—Female medical students in India need not complain of lack of encouragement. The Viceroy of India, during his term of office, has placed at the disposal of the Central Committee of the Lady Dufferin Fund five silver and two bronze medals for annual competition among the female medical students.

Medical Minims and Surgical Saws.—We quote the following useful axioms from the *Boston Medical and Surgical Journal* of September 5th:

The most effective instrument in medical surgery is the nail-brush.

The patient's interest in his own case is clinical; it is rarely pathogenetic, and never necroscopic.

A long prescription maketh no one fat but the druggist.

Better is aqua fortis with a ready stomach, than the best drug of the pharmacopœia and retching therewith.

Woman has some organs outside the pelvis.

Berlin makes a physician learned; Vienna skilful; the bedside wise.

The same channel brings their bread alike to the harlot and to the virtuous midwife.

The truly *necessary* calls upon a physician will about suffice to pay his tythes.

In the domestic republic the family physician is nominated by the husband, but confirmed in executive session by the wife.

The good medical Samaritan must needs look to it lest he be sued for the quality of his wine and oil, the speed of his beast, and the roominess of the quarters he provides in the inn. Albeit he gives of them all the best he has, he may find that the one who has most fallen among thieves is himself.

London Post-graduate Courses.—It has always been a reproach to London that the unrivalled clinical material of its numerous hospitals is not fully utilized for the purposes of medical education. It is not that teaching power is wanting, says the *British Medical Journal* of September 7th; on the contrary, the metropolitan schools could furnish among them a body of men thoroughly fitted to make London the centre of the medical world, as it undoubtedly ought to be. Owing to want of organization, however, a large amount both of material and teaching power is wasted. Nowhere is the loss of potential educative energy more evident than in the hospitals to which no medical school is attached. It is, therefore, with peculiar satisfaction that we hail the announcement that the medical staffs of several hospitals have decided to unite their forces and give courses of instruction to qualified medical men in the various important branches of medical science and practice which these institutions represent. The teaching is intended to be thoroughly practical, and the convenience of men engaged in the active exercise of their profession has been studied in the arrangement of the hours at which the courses will be held.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM SEPTEMBER 10 TO SEPTEMBER 16, 1889.

By direction of the Acting Secretary of War, the leave of absence, on surgeon's certificate of disability, granted FREEMAN V. WALKER, *First Lieutenant and Assistant Surgeon*, in S. O. 92, April 20, 1889, from this office, is extended one month on surgeon's certificate of disability.—*S. O. 211, A. G. O.*, September 11, 1889.

By direction of the Acting Secretary of War, FREEMAN V. WALKER, *First Lieutenant and Assistant Surgeon*, is relieved from duty in the Department of Texas, and will, upon the expiration of his present leave of absence, report in person to the commanding officer Jackson Barracks, Louisiana, for duty at that station, and by letter to the commanding general Division of the Atlantic.—Par. 2, *S. O. 212, A. G. O.*, September 12, 1889.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*